Ameren Illinois Company d/b/a
Ameren Illinois

MODERNIZATION ACTION PLAN

Infrastructure Investment Program

2012-2021

Attachment 2: 2019 Plan

April 1, 2019

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Executive Summary

2019 Plan Overview

On January 3, 2012, Ameren Illinois Company ("AIC") filed its proposed performance-based formula rate, Modernization Action Plan - Pricing ("Rate MAP-P"), with the Illinois Commerce Commission ("Commission") pursuant to Section 16-108.5 of the Public Utilities Act ("Act"). The Commission commenced Docket No. 12-0001 to review that filing. In making that filing, AIC confirmed that it elected to become a "participating utility", and committed to undertake the investments described in Section 16-108.5(b) of the Act. Section 16-108.5(b) also calls on AIC, within 60 days of such filing, to submit a plan for satisfying its infrastructure investment program commitments pursuant to subsection (b), which must include a schedule and staffing plan for the current and next calendar year. On March 2, 2012, AIC submitted its original plan for the calendar year 2012 and 2013. In 2013, 2014, and again in 2015, AIC submitted detailed plans the current calendar year. For information purposes, annual updates to the infrastructure investment plan are prescribed by the Act.

Accordingly in 2019, AIC submits to the Commission a revised 2019 Infrastructure Investment Program, hereafter referred to as the Plan. The 2019 Plan organizes individual projects under two broad categories of investment (Infrastructure Related and Smart Grid). AIC has further broken these down into six more detailed areas (Infrastructure Improvements, Training Facilities, Distribution Automation, AMI, Volt/VAR Optimization, and Software & Technology Enhancements).

Infrastructure Related Investments: This section of the Plan sets forth electric system upgrades, modernization projects, and training facilities. AIC has further broken this down into two subcategories:

A. Infrastructure Improvements

B. Training Facilities

Smart-Grid Related Investments: This section of the Plan describes the Smart Grid electric system upgrades, distribution infrastructure upgrades and modernization of these systems. AIC has further broken this up into four subcategories.

A. Distribution Automation

B. AMI

C. Volt/VAR Optimization

D. Software and Technology Enhancements

The 2019 Plan includes a projected cumulative total of $27.0 million of incremental capital investment and associated expense in electric system upgrades, modernization projects, and training facilities ("Infrastructure Related Investments"). The 2019 Plan also includes a projected cumulative total of $48.4 million of incremental capital investment and associated expense in "Smart Grid" electric system upgrades.

As required by Section 16-108 (b), the total projected $75.4 million of cumulative incremental capital investment under the 2019 Plan will be incremental to AIC's annual capital investment program, as defined in Section 16-108.5(b). That is, as part of this 2019 Plan, AIC will invest a projected cumulative total of at least $75.4 million more capital than a capital investment program that invested at an annual rate defined by AIC's average capital spend for

calendar years 2008, 2009, and 2010 as reported in AIC's applicable Federal Energy Regulatory Commission ("FERC") Form 1s.

The information provided within the 2019 Plan contemplates investments that AIC currently proposes to make in 2019 pursuant to Section 16-108.5 of the Act. All investments and amounts shown are subject to revision as AIC refines and adapts its 2019 Plan in light of future analysis, findings, and circumstances.

In the event that Section 16-108.5 becomes inoperative or Rate MAP-P is terminated, then the 2019 Plan, including but not limited to all programs and investments, will also become inoperative and terminate immediately, which is permitted by law.

Summary 2019 Plan Scope

Infrastructure Improvements

These programs are described in Section 1 and include, but are not limited to, the following specific programs. A brief overview of each program is described below, with a detailed description of each in Section 1.

A. **Replace Primary Substation Distribution Reclosers.** This program is projected to replace 22 primary distribution substation reclosers in 2019. These three phase oil reclosers or breakers will be replaced with modern single phase vacuum tripping devices. This work will provide reduced outages during single phase faults and modern relaying will provide tighter coordination and fault locating capabilities. Engineering will also commence for future projects.

B. **Substation Animal Protection.** This program is to install electric or passive animal resistant fences around susceptible equipment inside substations. In 2019, AIC projects to complete 6 substation animal protection projects. Engineering will also commence for future projects.

C. **Bulk Substation Improvements.** This program involves improving designated bulk supply substations to minimize large double bus outages due to a single contingency equipment failure. There is no planned investment in this program for 2019.

D. **Distribution Substation Transformer Reserve.** This program will add distribution substation transformer reserve to select substations by adding a

second transformer, upgrading transformers in a two unit station, re-enforcing existing distribution feeder ties, and/or constructing new distribution feeder ties. In 2019, AIC will complete 1 Distribution Substation Transformer Reserve Projects. Engineering will also commence for future projects.

E. Ties Capacity – Line 6973. This program implemented system upgrades needed to provide a reserve tie or loop feed with 69 kV high voltage distribution Line 6973, which was a radial line serving a peak load of roughly 42 MVA. This line originates at the Bush substation and serves the following substations: Morton-Cat, North Morton, Central, Southwood, Tazewell, Mindale, Armington, Burt, and Corn Belt Hoopdale. The scope of work included building a new bulk supply substation and reconductoring several miles of 69 kV line. Engineering and investment for this program commenced in 2016. Construction began in 2016 and this project was completed in 2017. There is no planned investment in this program for 2019.

F. Substation Low Side Auto Transfer. This program will add low side 12kV transformers and tie breakers to allow automatic low side transfer in some larger distribution substations with two or more transformers. AIC has over 150 substations 34 or 69kV high side, > 10.0 MVA with more than one transformer. A large percentage of these stations have no automatic transfer to the alternate transformer and bus in the event of a transformer or arrester fault. Many existing stations have the physical room for the additional breakers. There is no planned investment in this program for 2019.

G. High Voltage Distribution Pole Reinforcement. This program provides for the replacement of select wood poles with high strength poles, installation of additional high strength poles, or reinforcement of select wood poles on high voltage distribution lines. Hardening these select high voltage distribution lines will limit the likelihood of cascading failures due to extreme transverse loading. 120 poles are projected to be replaced/installed under this program in 2019. Engineering will also commence for future projects.

H. Replace High Voltage Distribution Breakers. This program replaces aging high voltage distribution breakers. In 2019, AIC projects to complete 3 project under this program Engineering will also commence for future projects.

I. Spacer Cable Program. This program entails the replacement of designated primary distribution spacer cable. There is approximately 1 mile of spacer cable projected to be replaced in 2019. Engineering will also commence for future projects.

J. Rebuild Primary Distribution Lines. This program plans to rebuild and/or reconductor primary distribution circuits. Lines or portions of lines would be selected based on reliability history, customer counts, and system improvement possibilities. In 2019, AIC projects to rebuild approximately 12 miles of primary distribution under this program. Engineering will also commence for future projects.

K. Primary Distribution Line Capacity Additions. This program is designed to rebuild existing lines for additional capacity, or build new lines to split existing loads. In 2019, AIC projects to complete 3 projects under this program. Engineering will also commence for future projects.

L. Bulk Transformer Outage Mitigation. The program is to provide system reinforcements by installing a second bulk supply transformer, building a new bulk supply substation, or reconductoring high voltage distribution lines to provide the system redundancy required to facilitate system maintenance and avoid load curtailments during a bulk substation transformer outage. There is no planned investment in this program for 2019.

M. Rebuild High Voltage Distribution Lines. The objective of this program is to rebuild and/or reconductor high voltage distribution lines. Factors such as pole/structure condition, deteriorated conductor, static wire condition, accessibility for repairs, line loading relative to thermal limits, and outage history will be considered in selecting and prioritizing the high voltage distribution lines to reconductor or rebuild. In many cases, the scope of work may be limited to a portion of a line or targeted to address a specific reliability concern such as pole failures or lightning related outages. There are approximately 39 miles of high voltage distribution line rebuild planned for 2019. Engineering will also commence for future projects.

N. Expanded Bulk Supply Substations. This program will construct new bulk supply substations (e.g., 161/69 kV, 138/69 kV, and 138/34.5 kV) or install new

bulk supply transformers at existing substation locations. This work will also include implementing associated line and equipment reinforcements. In 2019, AIC projects to complete 0 projects under this program; however, engineering will commence for future projects.

O. Underground Primary Distribution Cable. This program is designed to replace or remediate through injection, select primary underground cable. In 2019, AIC projects to replace or inject approximately 2 miles of primary underground cable. Engineering will also commence for future projects.

P. System Tie Primary Distribution. This program plans to build or reconductor primary distribution circuits to be able to tie adjacent circuits together for better operating efficiency and reliability. In 2019, AIC projects to complete 4 projects under this program. Engineering will also commence for future projects.

Q. CERT Remediation. This program specifically targets existing and potential Customers Exceeding Service Reliability Targets (CERT) for remediation each year. There is no planned investment in this program for 2019.

Training Facilities

This program provided for the purchase and renovation of a training facility in the Belleville area to facilitate electric, relay, and smart grid training. The facility consists of indoor and outdoor training space that provides state of the art classroom facilities in addition to hands-on training with physical equipment. This program also included enhancements to our current electric training facility in Decatur as well as the purchase of additional office space required to assist in accommodating a portion of the staffing needs set out in the bill. A more detailed description of this program including scope, schedule, capital expenditures, and staffing are included in Section 2 of this document. These projects were substantially completed in 2013. There are no additional planned investments under this program in 2019.

Distribution Automation

These programs are described in Section 3 and include the following programs. A brief overview of each program is shown below, with a detailed description of each set forth in Section 3.

A. **Primary Distribution Automation -** This program will install both line and substation primary distribution level automation schemes to promote automatic fault isolation and service restoration. For 2019, there are 24 primary distribution automation projects projected. Engineering will also commence for future projects.

B. **Communication Infrastructure** – This program is designed to build the communication infrastructure to support Smart Grid devices and functions. It is considered an enabling program for other projects so units are not tracked. In 2019, the communication infrastructure will be extended to support the 2019 Smart Grid projects. There are no additional planned investments under this program in 2019. Engineering will commence for future distribution automation project support.

C. **High Voltage Distribution Relaying.** This program is designed for replacement of select electro-mechanical relays with microprocessor based relays on AIC's high voltage distribution system. Benefits include enhanced coordination opportunities and fault location capabilities. There are no additional planned investments under this program in 2019.

D. **Distribution Substation Metering**. This program adds distribution substation transformer and circuit load metering that will remotely read and report. There are no additional planned investments under this program in 2019.

E. **High Voltage Distribution Automation.** This program is designed to install smart switching devices on select high voltage distribution lines and place strategically located Fault Circuit Indicators (FCI) to facilitate fault isolation and faster restoration of service to the remaining load. In 2019, there are 7 High Voltage Distribution Automation projects projected to be completed. Engineering will also commence on future projects.

F. **Smart Grid Test Bed -** The intent of this Smart Grid Test Bed program was to establish the necessary infrastructure, processes, and resources to implement the Smart Grid Test Bed requirements of the Act. The Test Bed provides applicants the opportunity to test Smart Grid related equipment, services and business models within a utility scale environment. Applicants are allowed to have equipment connected to the utility grid for the purpose of demonstrating that the equipment or systems function as designed. The Test Bed will validate applicant sponsored business models or services by testing the functional aspects of specific equipment or verification that services/business models provide the intended results based upon the applicants proposals. The Smart Grid Test Bed program also established the necessary infrastructure to perform AIC sponsored testing of electric distribution system equipment. There are no planned investments in this program in 2019.

G. Underground Network Modernization - This program is to replace the 1950 vintage network protectors with modern solid state network protectors. The new protectors will have SCADA remote communication and monitoring capabilities. This will ensure the safe isolation of network faults and allow for maintenance without time consuming switching or arc flash mitigation. There are no planned investments in this program in 2019.

H. Distributed Energy Resource Integration – Phase 1 of this program included installing at and in the vicinity of Ameren Illinois' Technology Applications Center (TAC) in Champaign Illinois distributed energy resources (battery storage, solar, wind, and natural gas generation), demand management systems, communication and control systems, and associated distribution lines, transformers, and switchgear to provide the Smart Grid enabling infrastructure to test distributed energy resource control, integration, dispatch, system islanding, microgrid functionality, and local demand management. Phase 1 was completed in 2016.

Phase 2 of this program included installing DER controllers to control the building automation system and electrically operated circuit breakers for advanced load controls at the Jasper St. building, Metro East Training Center (METC), and East St. Louis Operating Centers. Also, this project included installing battery powered energy storage units onto Gale Circuit 528. These storage units will serve as a backup energy supply for the city of Thebes in Division 6S. Phase 2 was completed in 2017. There are no planned investments in this program in 2019.

Advanced Metering Infrastructure (AMI)

A brief overview of this program is described below, with a more detailed description set forth in Section 4.

A. AMI. This program involves the planned replacement of 100% of the retail electric meters on the AIC distribution system with Advanced Meters. This program include deployment of an Advanced Metering Infrastructure (AMI), which provides a two-way communications infrastructure to support the metering functions and other customer service applications such as remote disconnect. Expected benefits include reductions in projected bills, unaccounted for energy, and consumption on inactive meters. Deployment of Advanced Meters will occur pursuant to the most current Advanced Metering Infrastructure Deployment Plan ("AMI Plan") filed with the ICC.

Volt/VAR Optimization

These programs are described in Section 5 and include, but are not limited to, the following specific programs. A brief overview of each program is shown below, with a detailed description of each set forth in Section 5.

A. **High Voltage Volt/VAR Control.** This program is to facilitate dynamic voltage control and optimal reactive power flow on the high voltage distribution system. Generally this involves installing remote switching capability and control on bulk supply transformers load tap changers (LTC's), switching capacitor banks, and controlling bulk supply voltage regulators using a computerized technology solution. The initial focus is to ensure all switch high voltage distribution capacitor banks have SCADA control and voltage indication. There are 2 projects planned to be completed in 2019.

B. **Primary Distribution Volt/VAR Control.** This program is intended to provide dynamic voltage control and optimal reactive power flow. The program will focus on a Volt/VAR Optimization (VVO) deployment across several AIC primary distribution level (<15kV) circuits by controlling switching capacitor banks, voltage regulators, and possibly transformer load tap changers (LTCs) using a VVO computerized control technology solution. This may require the addition of current/voltage monitoring, SCADA at each LTC, voltage regulator, and switched capacitor bank location. In 2019, there are no Primary Distribution Volt/VAR Control projects projected to be completed.

Software and Technology Enhancements:

These programs are described in Section 6 and include, but are not limited to, the following specific programs. A brief overview of each program is shown below, with a detailed description set forth in Section 6.

A. Advanced Distribution Management System (ADMS). AIC implemented an ADMS in order to replace its existing Distribution SCADA System (DDOS) and its Outage Analysis System (OAS). The ADMS system is a fully integrated suite of applications that provides distribution system operators with a common user interface to monitor, control, and manage the electric distribution system and smart devices throughout the distribution system. Phase three of this program began in 2012 and consisted of a three cycle implementation. The SCADA portion was implemented in the 3rd quarter of 2012, the DMS mapping was implemented in 4th quarter of 2012 with additional DMS functionality implemented in the 2nd quarter of 2013. The outage portion was completed in late 2014. There are no planned investments under this program in 2019.

B. DEW Replacement. This project is to replace the current engineering analysis tool which is called Distribution Engineering Workstation (DEW). This tool has limitations related to circuit balancing, capacitor bank placements, and voltage drop calculations. Replacement with a state of the art engineering analysis tool will effectively enable implementation of many of the smart grid programs which require distribution engineering analysis as part of the proposed project design. This

program commenced in 2015 and was completed in 2016. There are no planned investments under this program in 2019.

Summary 2019 Plan Schedule

The program schedule explains the planned flow of work within each program over the course of the year. Each schedule represents an annual work plan containing a high level task list. It is recognized that scope priorities will be adjusted over the course of the year as new information is obtained. Detailed 2019 planned schedules for specific program areas are provided in the sections that follow.

Summary 2019 Plan Capital Investments

The program capital projection identifies the planned monthly capital cost for each program. The 2019 Plan investment total is projected to be $75.4 million in incremental capital investments plus associated expenses.

Summary 2019 Program Staffing

AIC will calculate FTEs in accordance with Appendix A of the revised Modernization Action Plan, Infrastructure Investment, 2012-2021 submittal for 2019.

Summary 2019 Plan Units of Work

The program quantity of units describes the projected number of work units, where applicable, that are planned to be completed in 2019 for each program area. Units of work for each program are discussed, as applicable, in that program's respective section of the Plan.

Section 1: Infrastructure Improvement Investments

Section 1.A: Replace Primary Distribution Substation Reclosers

1.A.1: 2019 Program Scope

Replacement of select three phase hydraulic reclosers or breakers with single phase vacuum devices with modern relaying is expected to reduce CI by isolating single phase faults rather than tripping all three phases. Replacement of the aging hydraulic reclosers or breakers is also expected to reduce the failure rate and reduce future maintenance expenditures.

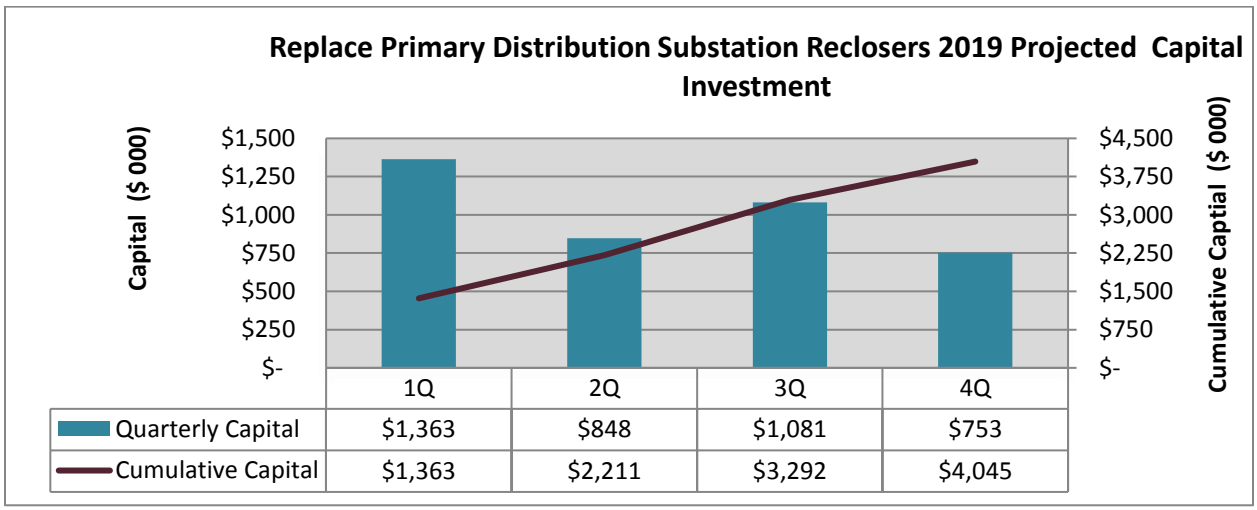
The breakers were generally selected on the basis of:

1. Greatest number of customers
2. Single phase tripping acceptability
3. Criticality of load
4. Maintenance history of recloser
5. Fault duty
6. Upcoming scheduled recloser maintenance
7. Workload management

1.A.2: 2019 Program Capital Investments

Figure 1.A.2 represents the projected capital investment for this program in 2019. AIC estimates the 2019 program capital costs to be $4.05 million plus associated expenses. Estimates of cost, units of work, and schedules for that work may evolve over time.

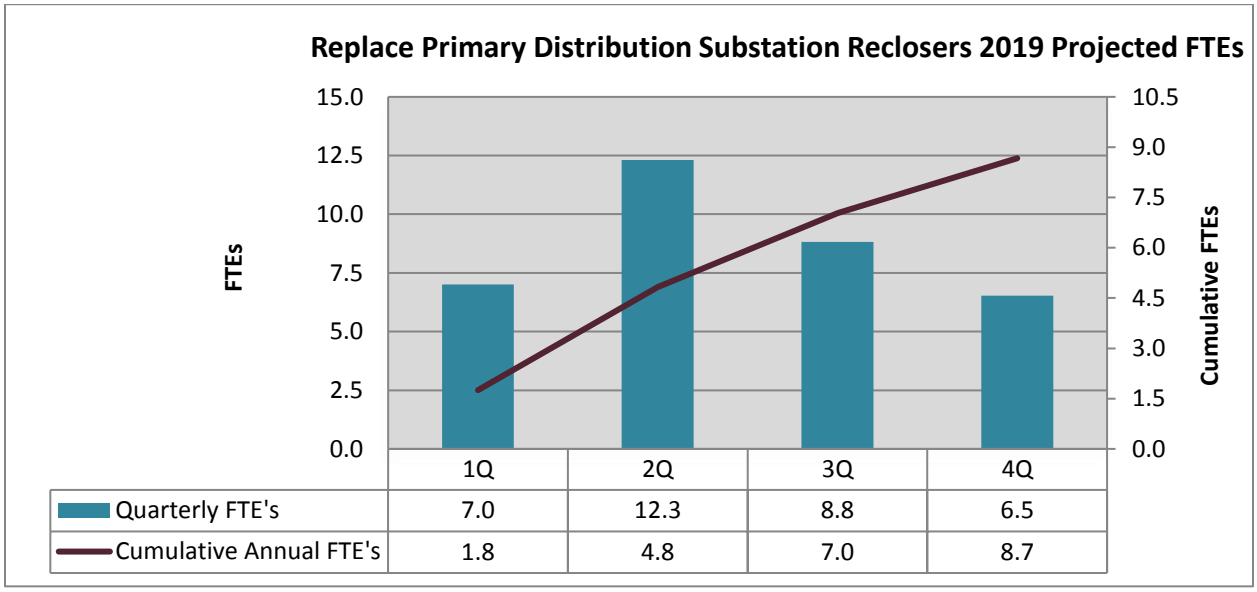
Figure 1A.2: Replace Primary Distribution Substation Reclosers 2019 Capital Investments



1.A.3: 2019 Program FTEs

Figure 1.A.3 represents the projected FTEs required to perform the scheduled scope of work for this program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision, and craft.

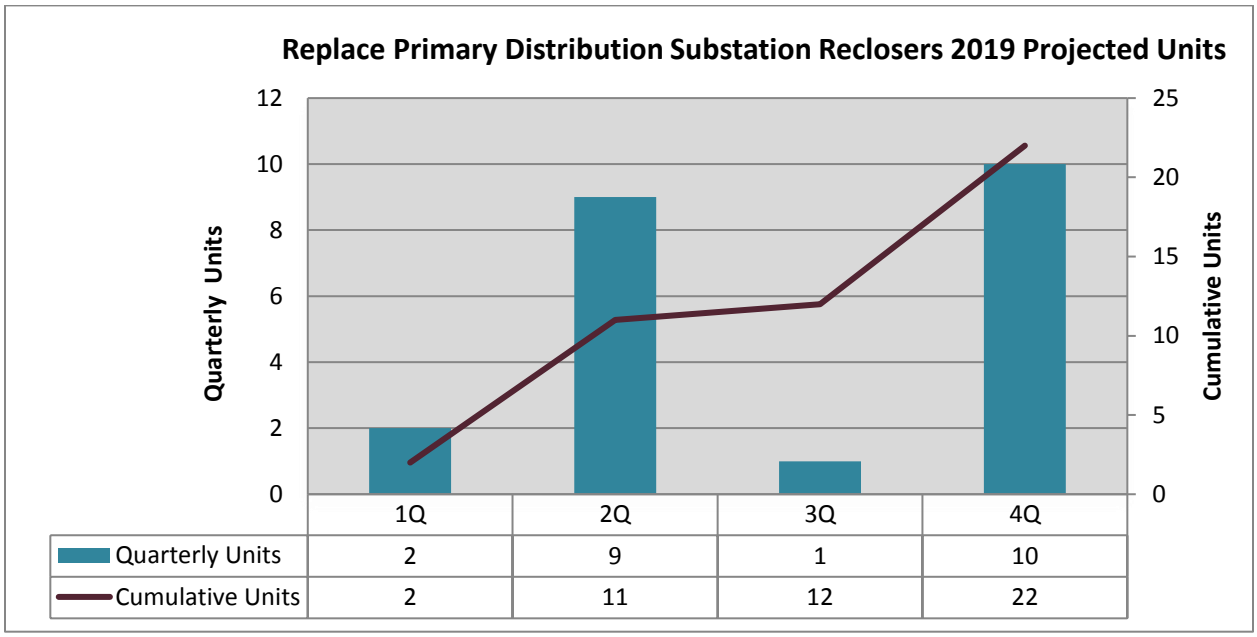
Figure 1.A.3: Replace Primary Distribution Substation Reclosers 2019 Projected FTEs



1.A.4: 2019 Program Units

Figure 1.A.4 shows the number of reclosers projected to be installed under this program in 2019. This chart will serve as a tracking mechanism over the course of 2019, and reflects the scope of work planned to be accomplished, as well as the scope of work left to be performed. Estimates of cost, units of work, and schedules for that work may evolve over time.

Figure 1.A.4: Replace Primary Distribution Substation Reclosers 2019 Projected Unites



Section 1.B Substation Animal Protection

1.B.1: 2019 Program Scope

This program is to install animal protection for the designated substations by the installation of electrical or passive animal fences to mitigate animal caused substation outages. Passive fences are used where the substations have insufficient room for an electric fence to be located safely between the equipment and the safety fence.

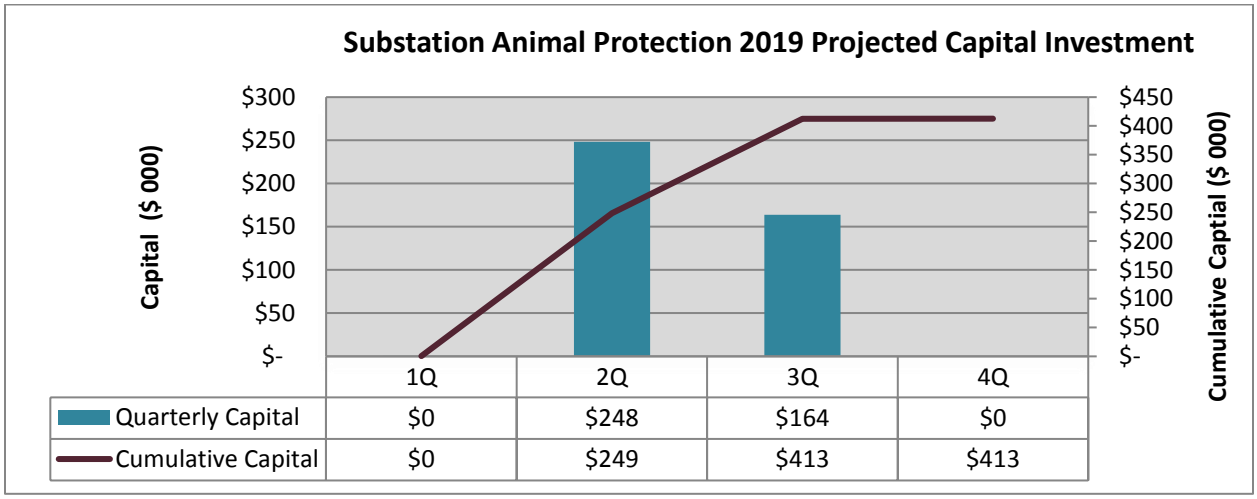
The substations to have animal fences installed were generally selected by the following criteria:

1. Greatest number of customers.
2. Criticality of the load
3. Outage history
4. Site evaluation
5. Workload management

1.B.2: 2019 Program Capital Investments

Figure 1.B.2 represents the projected capital investment for this program in 2019. AIC estimates the 2019 program cost to be $0.41 million in capital investment plus associated expenses. Estimates of cost, units of work and schedules for that work may evolve over time.

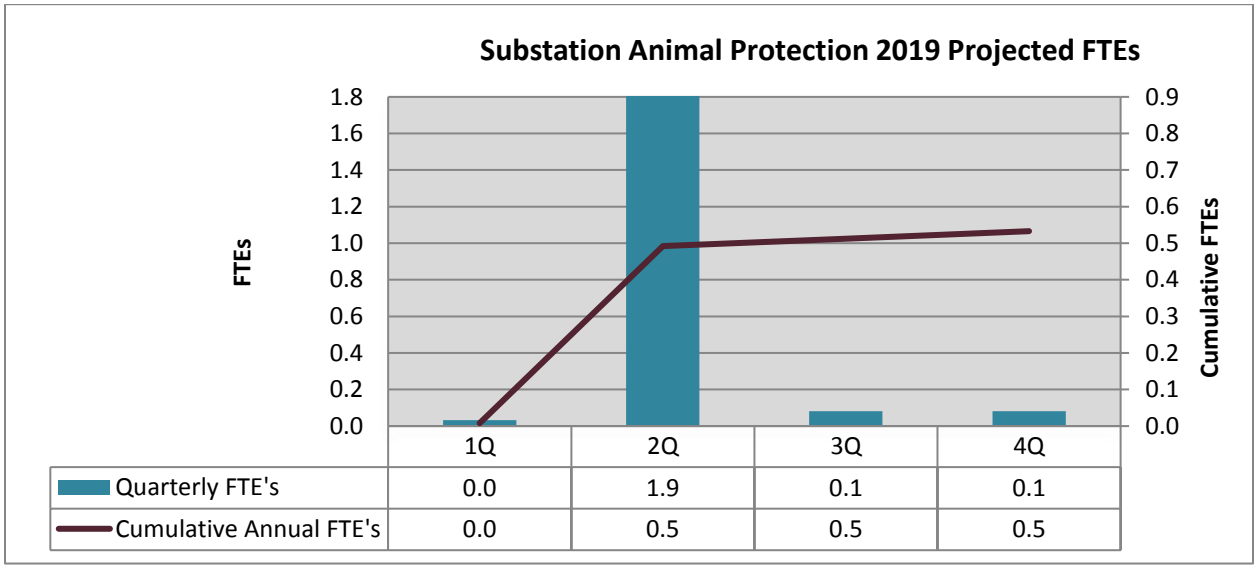
Figure 1.B.2: Substation Animal Protection 2019 Capital Investments



1.B.3: 2019 Program FTEs

Figure 1.B.3 represents the projected FTEs required to perform the scheduled scope of work under this program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision, and craft.

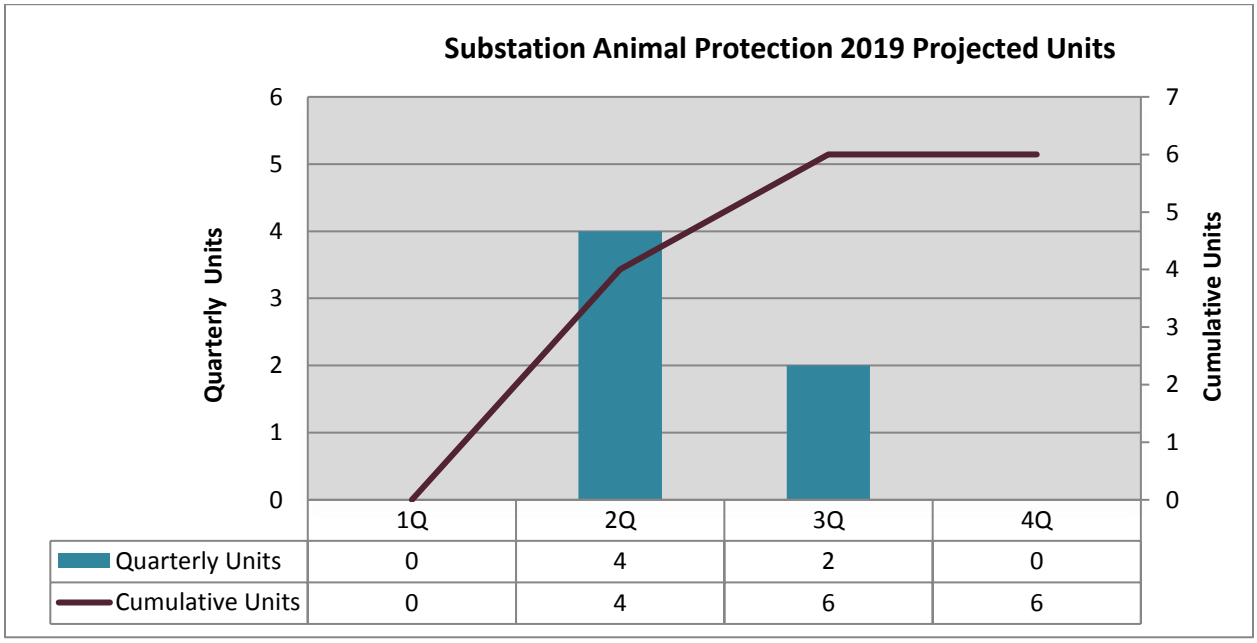
Figure 1.B.3: Substation Animal Protection 2019 Projected FTEs



1.B.4: 2019 Program Units

Figure 1.B.4 shows the projected number of substations protected under this program in 2019. This chart will serve as a tracking mechanism over the course of 2019, and reflects the scope of work planned to be accomplished, as well as the scope of work left to be performed. Estimates of cost, units of work, and schedules for that work may evolve over time.

Figure 1.B.4: Substation Animal Protection 2019 Projected Units



Section 1.C: Bulk Substation Improvements

1.C.1: 2019 Program Scope

This program involves improving designated bulk supply substations to minimize large double bus outages due to a single contingency equipment failure. Projects were generally selected based on the following criteria.

1. Criticality of load.
2. Number of connected customers.
3. Improvements in operating flexibility.

1.C.2: 2019 Program Capital Investments

There are no projected capital expenditures expected in this program for 2019.

Section 1.D: Distribution Transformer Reserve.

1.D.1: 2019 Program Scope

This program will add distribution substation transformer reserve to select substations by, but not limited to, a combination of the following.

1. Adding a second transformer
2. Upgrading transformers in multi-unit substations.
3. Re-enforcing existing distribution feeder ties.
4. Constructing new distribution feeder ties.

Expected benefits include, but are not limited to, reduced outages during a single transformer protection zone fault and increased operating flexibility to perform maintenance functions.

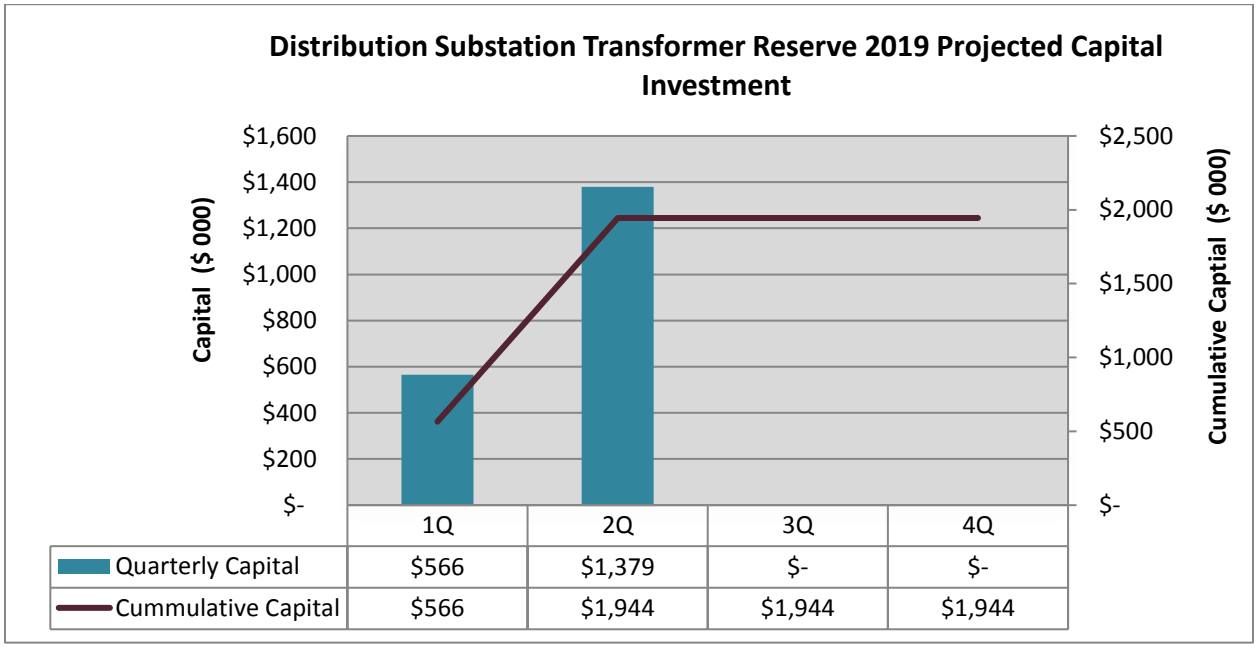
The stations will be generally selected based on the following criteria:

1. Load transfer capability.
2. Number of connected customers.

1.D.2: 2019 Program Capital Investments

Figure 1.D.2 represents the projected capital investment for this program in 2019. AIC estimates the 2019 program cost to be approximately $1.9 million in capital investment, plus associated expenses. Estimates of cost, units of work, and schedules for that work may evolve over time.

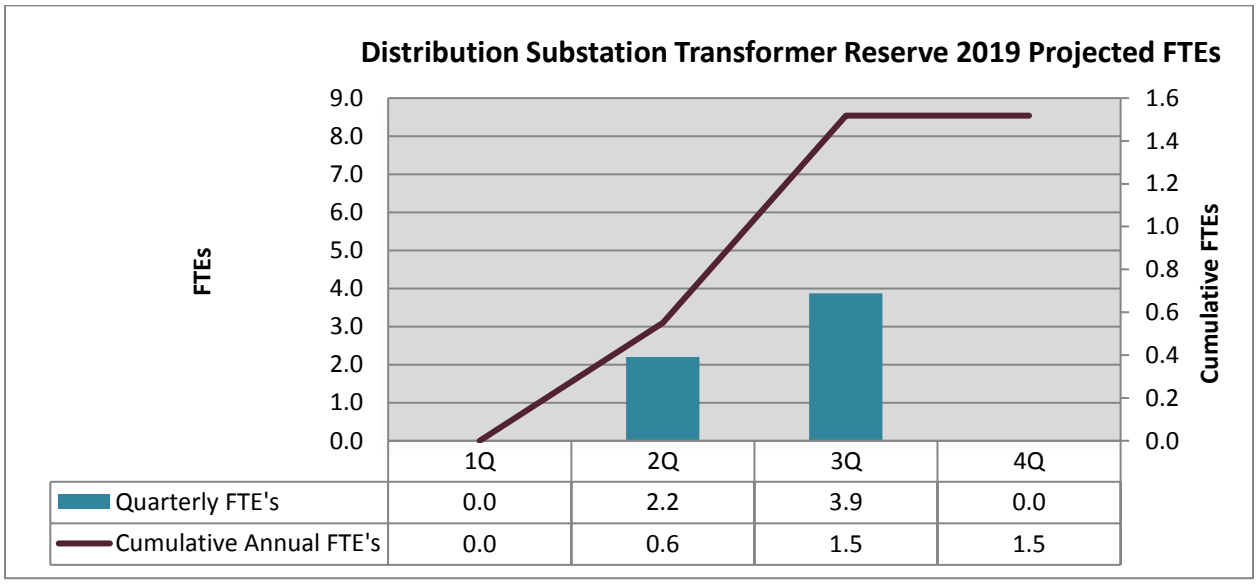
Figure 1.D.2: Distribution Transformer Reserve 2019 Capital Investment



1.D.3: 2019 Program FTEs

Figure 1.D.3 represents the projected FTEs required to perform the scheduled scope of work for this program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision and craft.

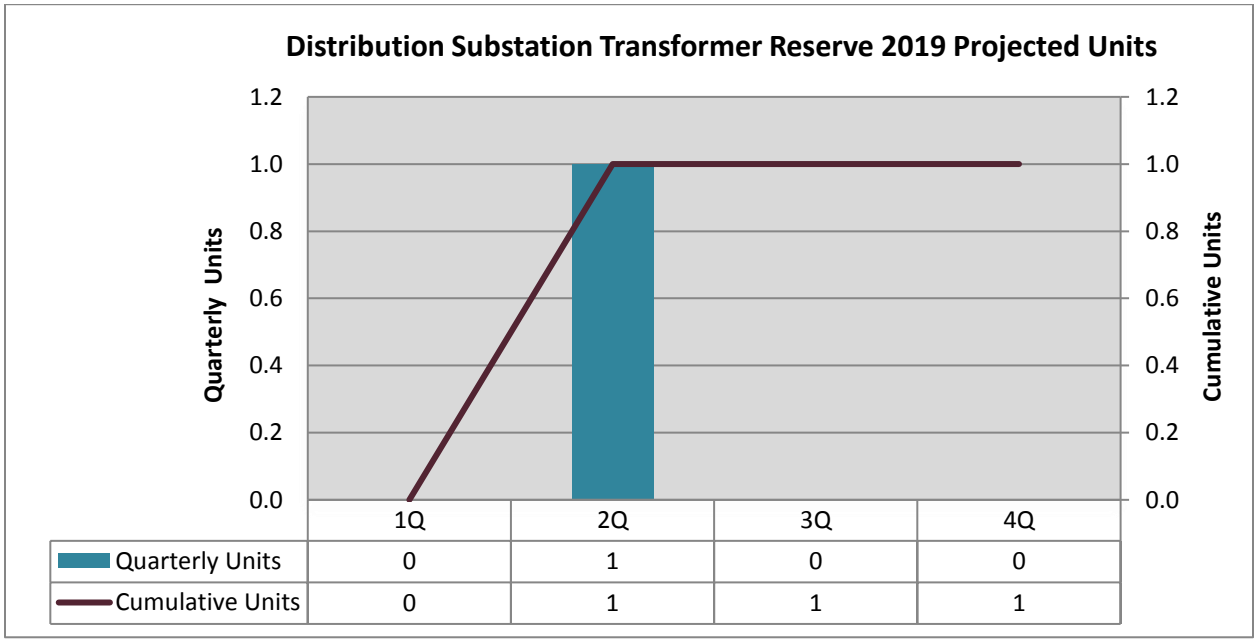
Figure 1.D.3: Distribution Transformer Reserve 2019 Projected FTEs



1.D.4: 2019 Program Units

Figure 1.D.4 shows the projected number of projects to be placed in service in 2019 under this program. This chart will serve as a tracking mechanism over the course of 2019, and reflects the scope of work planned to be accomplished, as well as the scope of work left to be performed. Estimates of cost, units of work, and schedules for that work may evolve over time.

Figure 1.D.4: Distribution Transformer Reserve 2019 Projected Units



Section 1.E: Tie Line Capacity – Line 6973

1.E.1: 2019 Program Scope

The scope of this project is to provide a reserve supply for the load that is supplied by Line 6973. Currently this line exceeds the threshold design criteria of having a reserve supply for lines in excess of 40MVA. This project will also relieve loading on 34.5kV circuit L3390 and defer the installation of the Edwards 150MVA 138/69kV LTC autotransformer.

The major portions of this project are as follows:

1. Build a new substation (Huff) and install a 112MVA 138/69kV LTC Autotransformer.
2. Upgrade L6973 and connect to the 69KV mesh network.
3. 2000Amp 69KV bus for 3-69kV line positions, 1-69kV capacitor bank, 2-69kV line terminals.
4. The 138kV transmission connection that is required will be outside of this plan.

1.E.2: 2019 Program Capital Investments

There are no projected capital expenditures expected in this program for 2019.

Section 1.F.: Substation Low Side Auto Transfer

1.F.1: 2019 Program Scope

This program will add low side 12kV tie breakers to allow automatic low side transfer in some larger distribution substations with two or more transformers. AIC has over 150 substations 34 or 69kV high side, > 10.0 MVA with more than one transformer. A large percentage of these stations have no automatic transfer to the alternate transformer and/or bus in the event of a transformer protection zone fault.

This program will evaluate the most heavily loaded stations by:

1. Customer count.
2. Site feasibility.

1.F.2: 2019 Program Capital Investments

There are no projected capital expenditures expected in this program for 2019.

Section 1.G: High Voltage Distribution Pole Reinforcement

1.G.1: 2019 Program Scope

The intent of this program is to provide for the replacement of select wood poles with high strength poles, installation of additional high strength poles, or reinforcement of select wood poles on high voltage distribution lines. Hardening these select high voltage distribution lines will limit the likelihood of cascading failures due to extreme transverse loading.

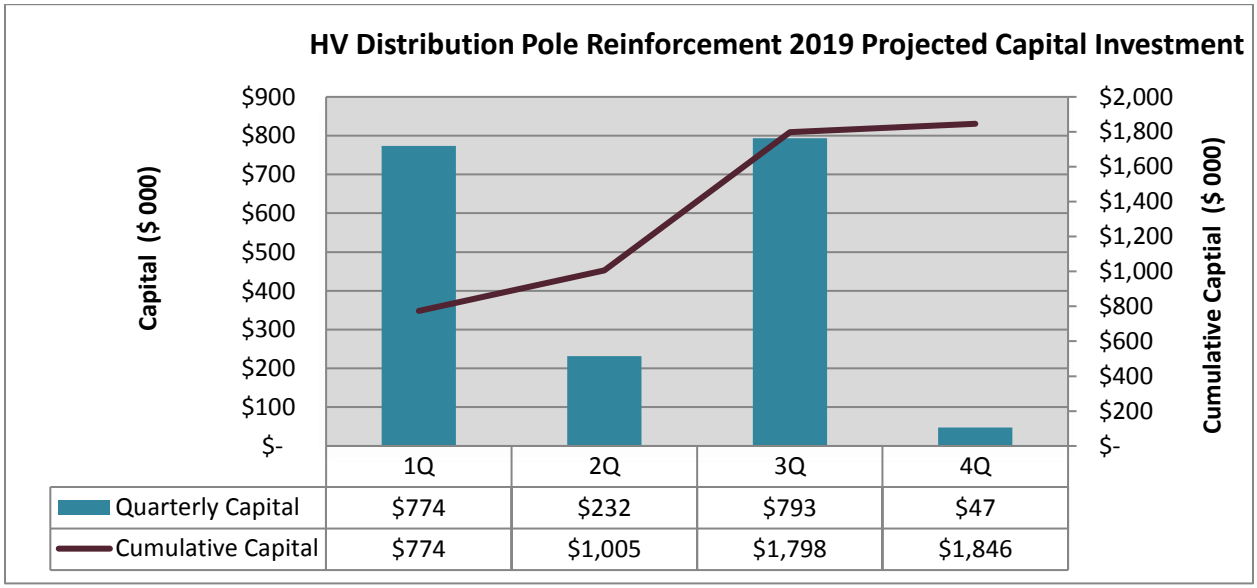
The lines will be generally selected based on:

1. Historical outage information
2. Greatest number of customers
3. Age and ground line condition of the pole
4. Proximity to guyed or protected structures
5. Workload management.

1.G.2: 2019 Program Capital Investments

Figure 1.G.2 represents the projected capital investment for this program in 2019. AIC estimates the 2019 program cost to be approximately $1.85 million in capital investment, plus associated expenses. Estimates of cost, units of work, and schedules for that work may evolve over time.

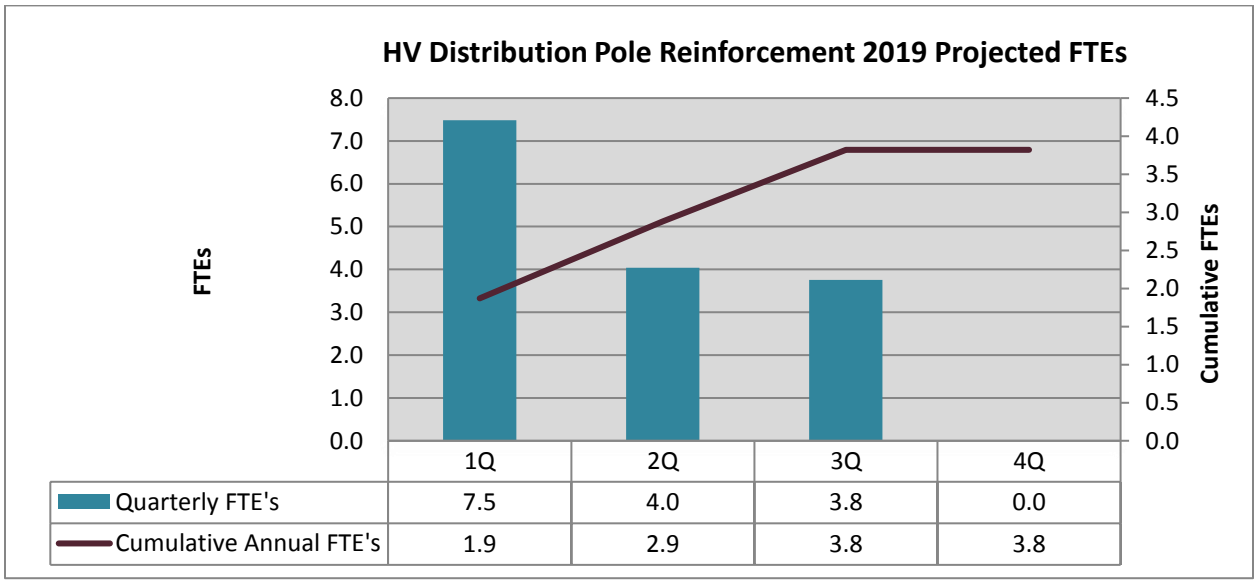
Figure 1.G.2: HV Pole Reinforcement Program 2019 Capital Investment



1.G.3: 2019 Program FTEs

Figure 1.G.3 represents the projected FTEs required to perform the scheduled scope of work for this program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision and craft.

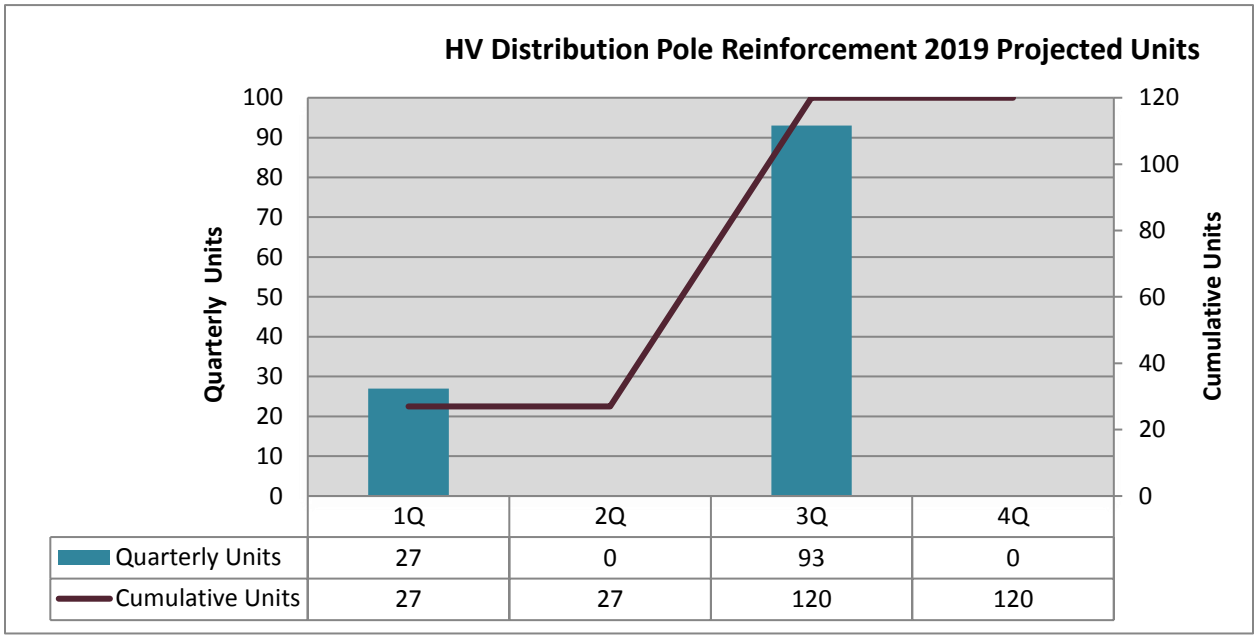
Figure 1.G.3: HV Distribution Pole Reinforcement Projected 2019 Projected FTEs



1.G.4: 2019 Program Units

Figure 1.G.4 shows the projected number of poles to be replaced, installed or reinforced in 2019 under this program. This chart will serve as a tracking mechanism over the course of 2019, and reflects the scope of work planned to be accomplished, as well as the scope of work left to be performed. Estimates of cost, units of work, and schedules for that work may evolve over time.

Figure 1.G.4: HV Pole Reinforcement Program 2019 Projected Units



Section 1.H: Replace High Voltage Distribution Breakers

1.H.1: 2019 Program Scope

This program provides for the replacement of aging 34kV or 69kV breakers. AIC has over one thousand 34kV and 69kV breakers, and over 400 are greater than 40 years old. Many of them have problematic mechanisms that are beyond a reasonable maintenance strategy.

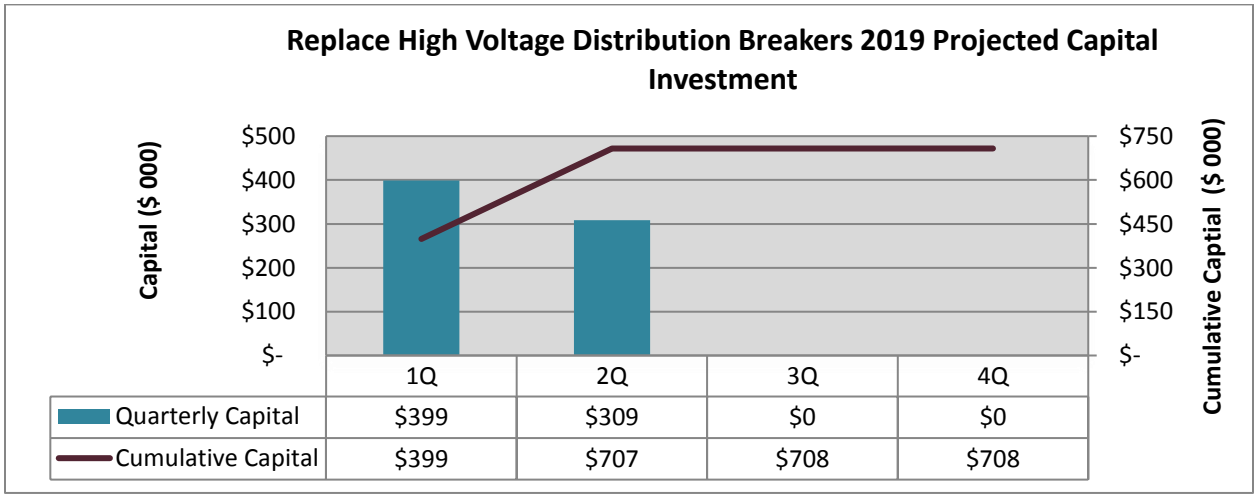
The breakers will be generally selected on the basis of:

1. Customer counts.
2. Maintenance history.
3. Criticality of load.
4. Workload management

1.H.2: 2019 Program Capital Investments

Figure 1.H.2 represents the projected capital investment for this program in 2019. AIC estimates the 2019 program cost to be approximately $0.71 million in capital investment, plus associated expenses. Estimates of cost, units of work, and schedules for that work may evolve over time.

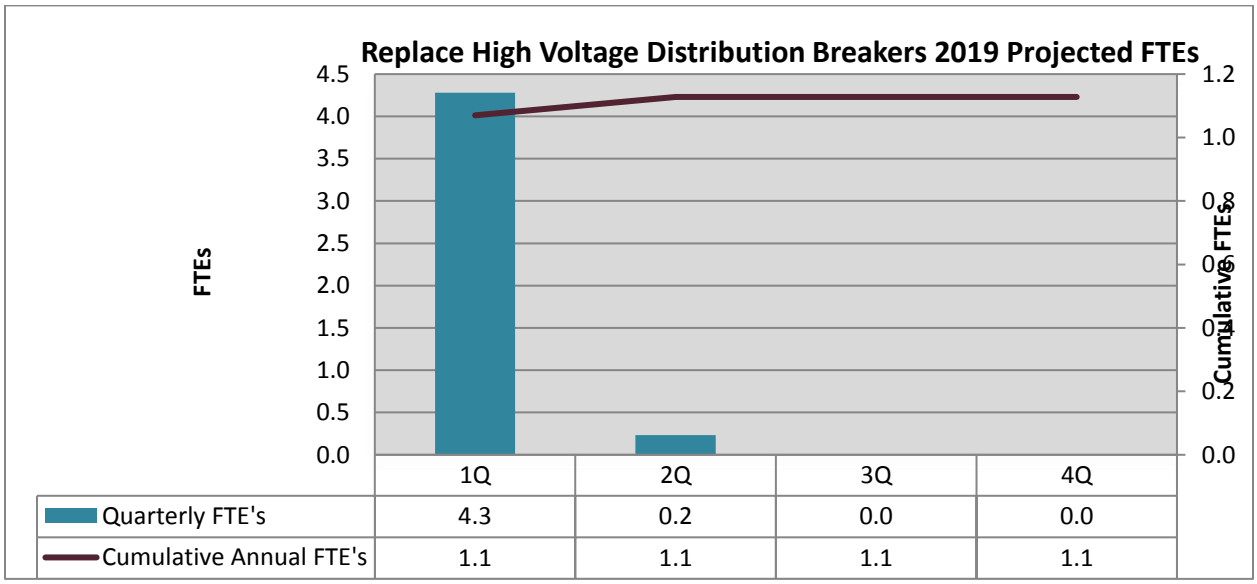
Figure 1.H.2: Replace HV Distribution Breakers Program 2019 Capital Investment



1.H.3: 2019 Program FTEs

Figure 1.H.3 represents the projected FTEs required to perform the scheduled scope of work for this program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision and craft.

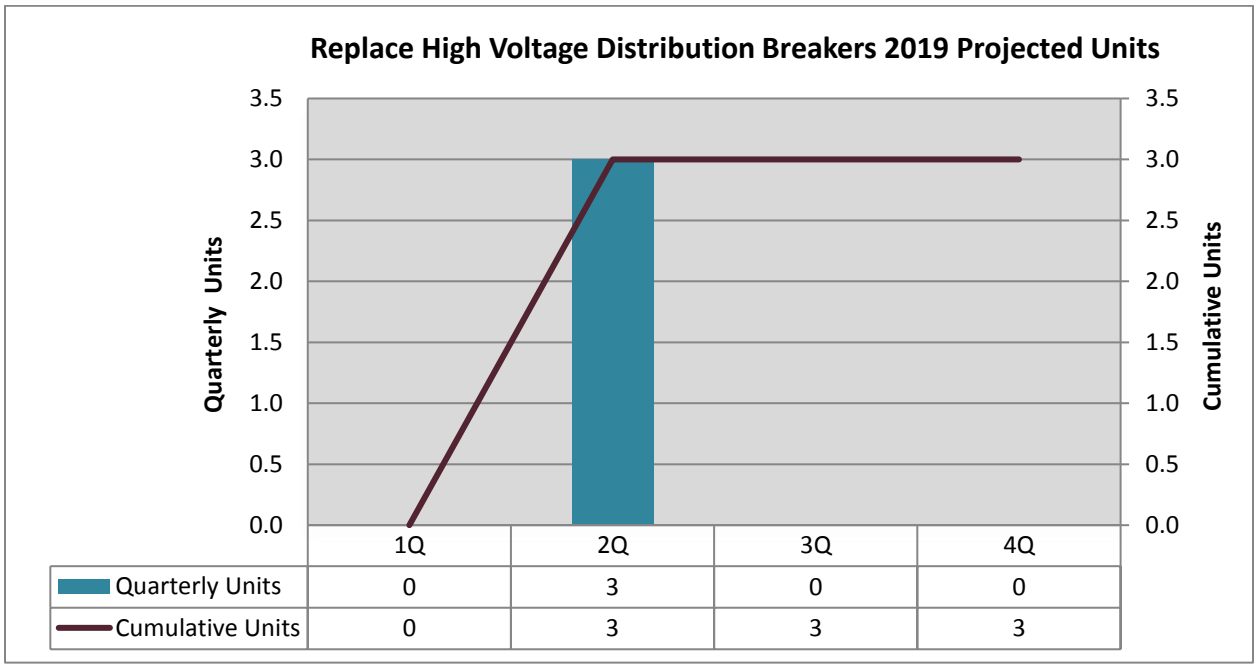
Figure 1.H.3: Replace HV Distribution Breakers Program 2019 Projected FTEs



1.H.4: 2019 Program Units

Figure 1.H.4 shows the projected number of units to be replaced, installed or reinforced in 2019 under this program. This chart will serve as a tracking mechanism over the course of 2019, and reflects the scope of work planned to be accomplished, as well as the scope of work left to be performed. Estimates of cost, units of work, and schedules for that work may evolve over time.

Figure 1.H.4: Replace High Voltage Distribution Breakers 2019 Projected Units



Section 1.I: Spacer Cable Program

1.I.1: 2019 Program Scope

This program is designed to improve the performance of spacer cable systems and the reliability of the circuits involved. In cases where the insulation has severely deteriorated, this involves replacement of the existing spacer cable. Depending upon the specific application, a new spacer cable system may be installed, new open wire conductors, or underground cable may be installed.

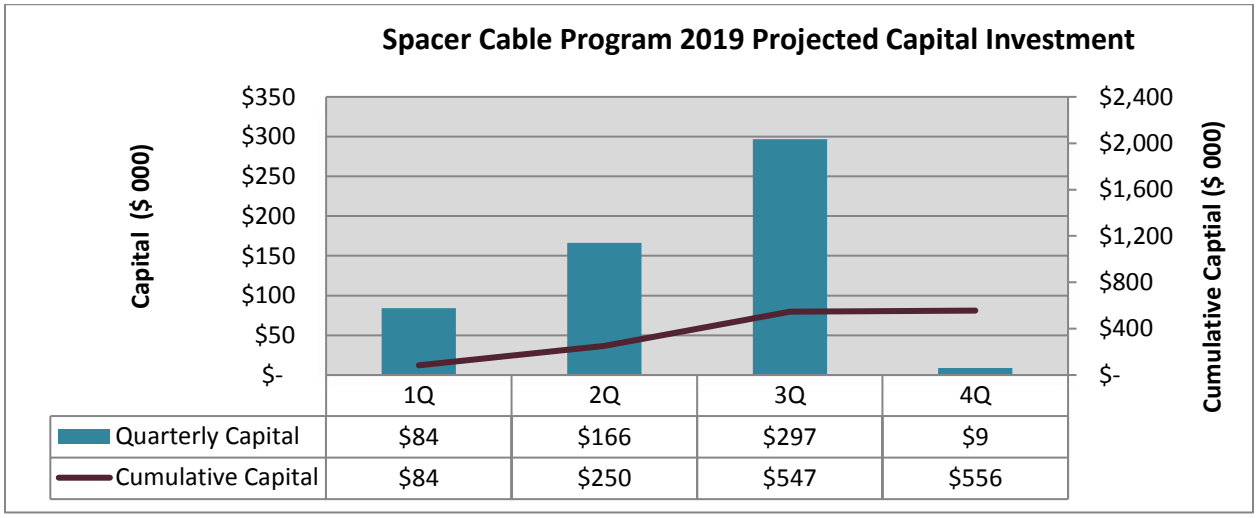
The spacer cable projects were generally selected on the basis of:

1. Inspection results
2. Greatest number of customers
3. Engineering availability
4. Workload management

1.I.2: 2019 Program Capital Investments

Figure 1.I.2 represents the projected capital investment for this program in 2019. AIC estimates the 2019 program cost to be approximately $0.56 million in capital investment, plus associated expenses. Estimates of cost, units of work and schedules for that work may evolve over time.

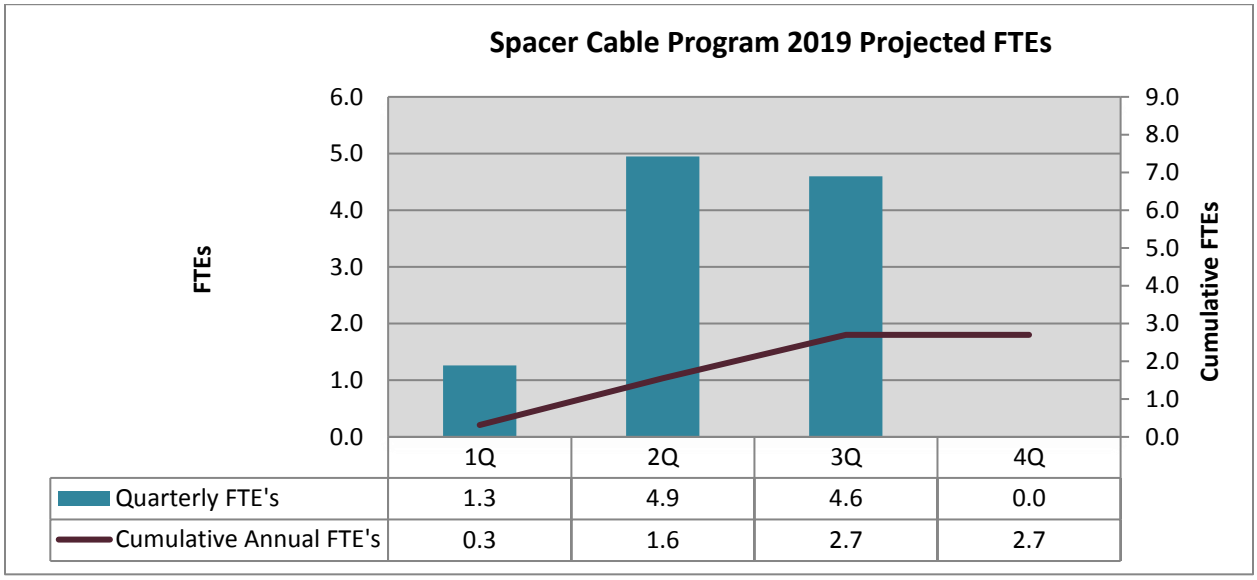
Figure 1.I.2: Spacer Cable Program 2019 Capital Investments



1.I.3: 2019 Program FTEs

Figure 1.I.3 represents the projected FTEs required to perform the scheduled scope of work for this program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision and craft.

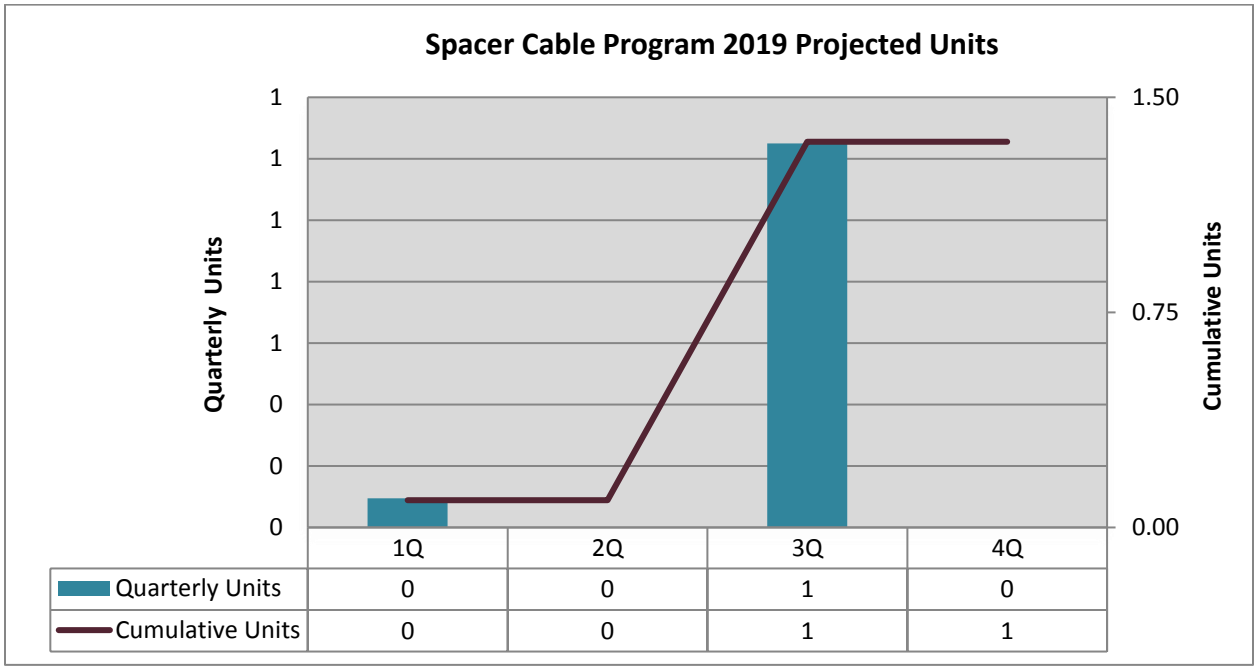
Figure 1.I.3: Spacer Cable Program 2019 Projected FTEs



1.I.4: 2019 Program Units

Figure 1.I.4 represents the projected units to be completed for this program in 2019. Engineering will also commence for future projects in 2019. The units for the Spacer Cable Program are miles.

Figure 1.I.4: Spacer Cable Program 2019 Projected Units



Section 1.J: Rebuild Primary Distribution Lines

1.J.1: 2019 Program Scope

This program is designed to rebuild select distribution circuits. These projects could include reconductoring, replacing poles, increasing the operating voltage or total rebuilds.

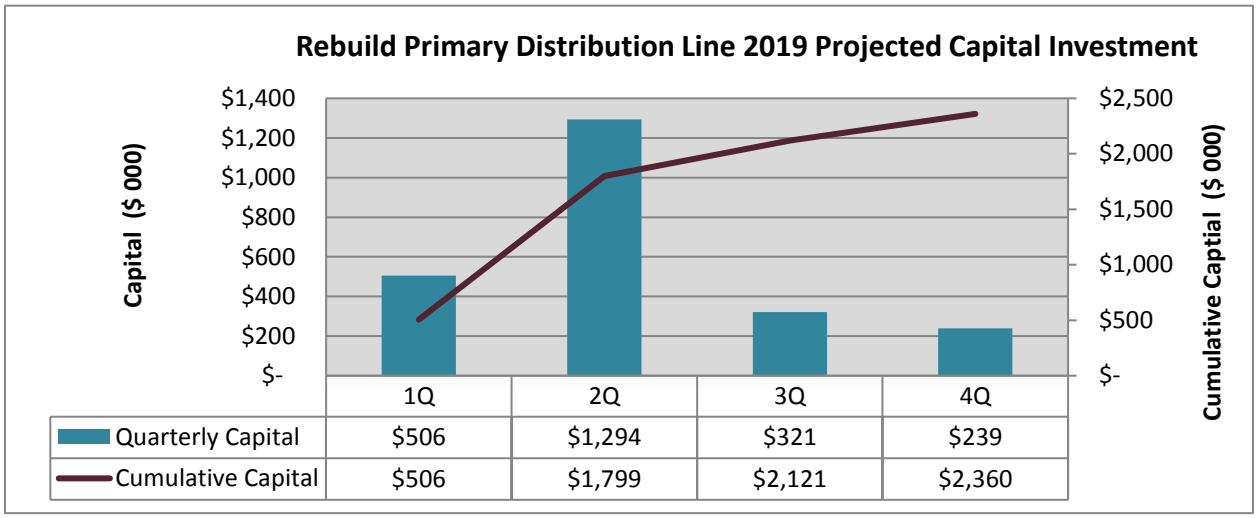
These projects were generally selected on the basis of:

1. Line Condition
2. Greatest number of customers
3. Outage history
4. Workload management
5. System improvement possibilities

1.J.2: 2019 Program Capital Investments

Figure 1.J.2 represents the projected capital investment for this program in 2019. AIC estimates the 2019 program cost to be approximately $2.4 million in capital investment, plus associated expenses. Estimates of cost, units of work, and schedules for that work may evolve over time.

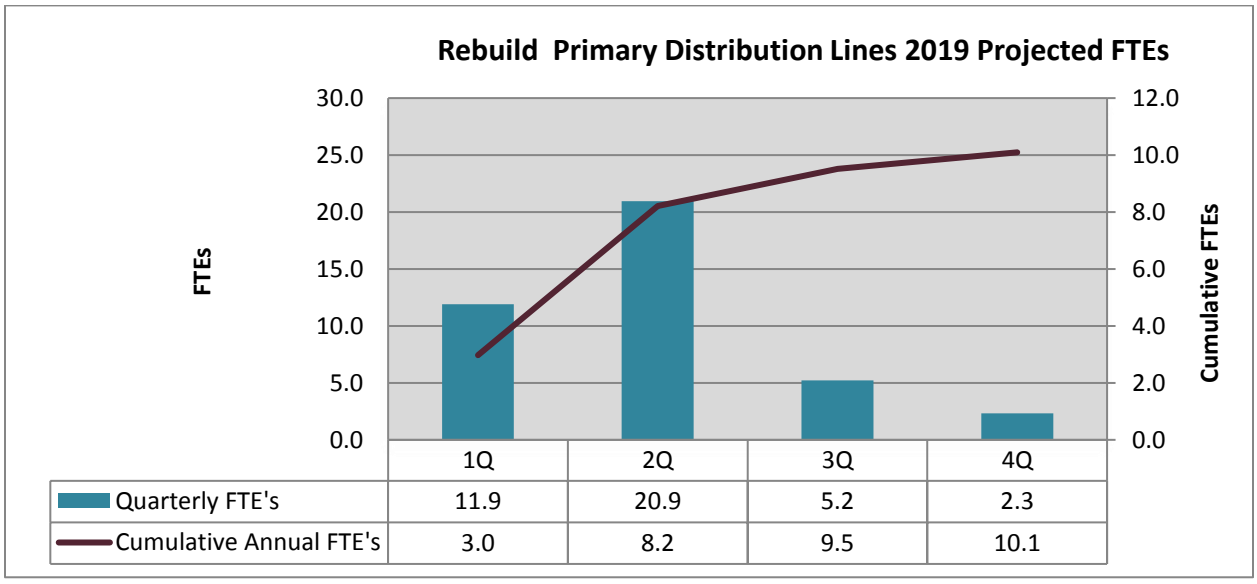
Figure 1.J.2: Rebuild Primary Distribution Lines 2019 Capital Investments



1.J.3: 2019 Program FTEs

Figure 1.J.3 represents the projected FTEs required to perform the scheduled scope of work for this program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision and craft.

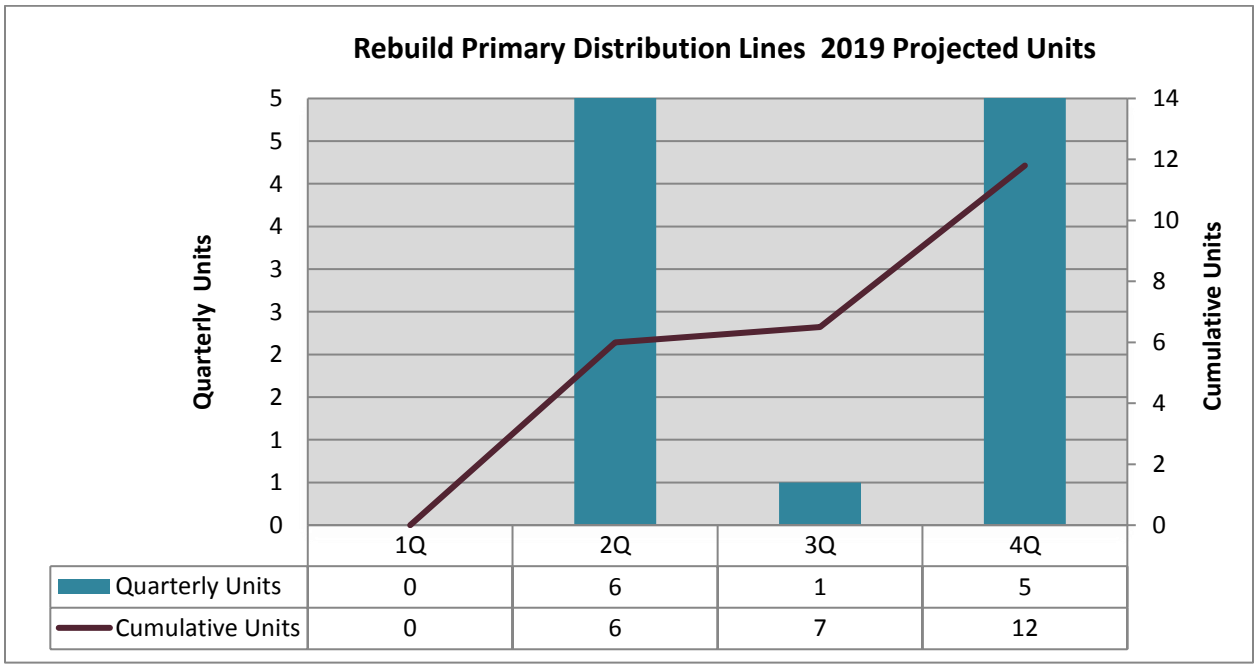
Figure 1.J.3: Rebuild Primary Distribution Lines 2019 Projected FTEs



1.J.4: 2019 Program Units

Figure 1.J.4 shows the number of units to be completed in 2019 under this program. This chart will serve as a tracking mechanism over the course of the year, and reflects the scope of work planned to be accomplished as well as the scope of work left to be performed. Estimates of cost, units of work, and schedules for that work may evolve over time. The units shown below are miles.

Figure 1.J.4: Rebuild Primary Distribution Lines 2019 Projected Units



Section 1.K: Primary Distribution Lines Capacity Additions

1.K.1: 2019 Program Scope

This program is designed to upgrade or modify existing distribution circuits to provide additional capacity. The additional capacity may be required due to such items as existing or anticipated load, load transfer capability, or voltage conversions.

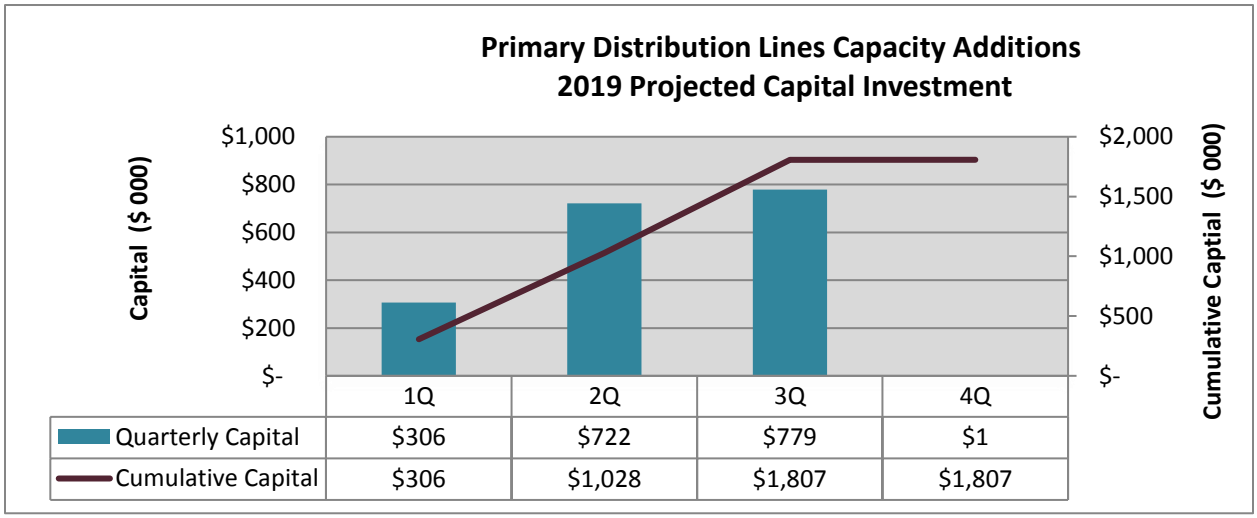
These projects were generally selected on the basis of:

1. Thermal load considerations
2. Load transfer capabilities
3. Projected load growth
4. Reliability history
5. Workload management

1.K.2: 2019 Program Capital Investments

Figure 1.K.2 represents the projected capital investment for this program in 2019. AIC estimates the 2019 program cost to be approximately $1.81 million in capital investment, plus associated expenses. Estimates of cost, units of work, and schedules for that work may evolve over time.

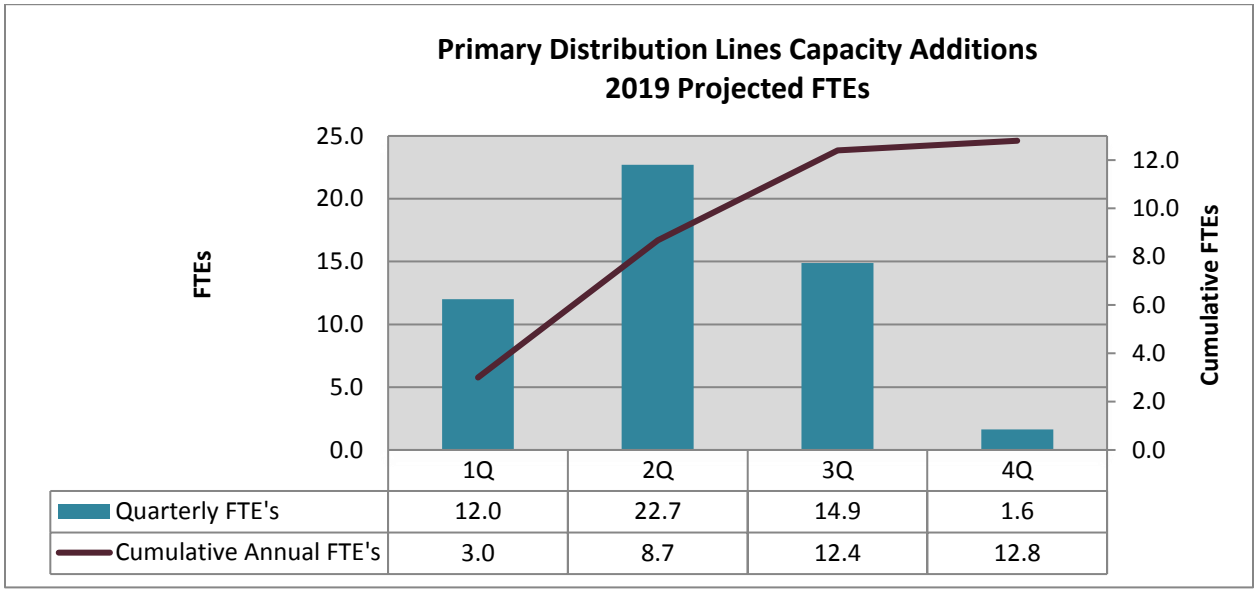
Figure 1.K.2: Primary Distribution Line Capacity Additions 2019 Projected Capital Investments



1.K.3: 2019 Program FTEs

Figure 1.K.3 represents the projected FTEs required to perform the scheduled scope of work for this program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision and craft.

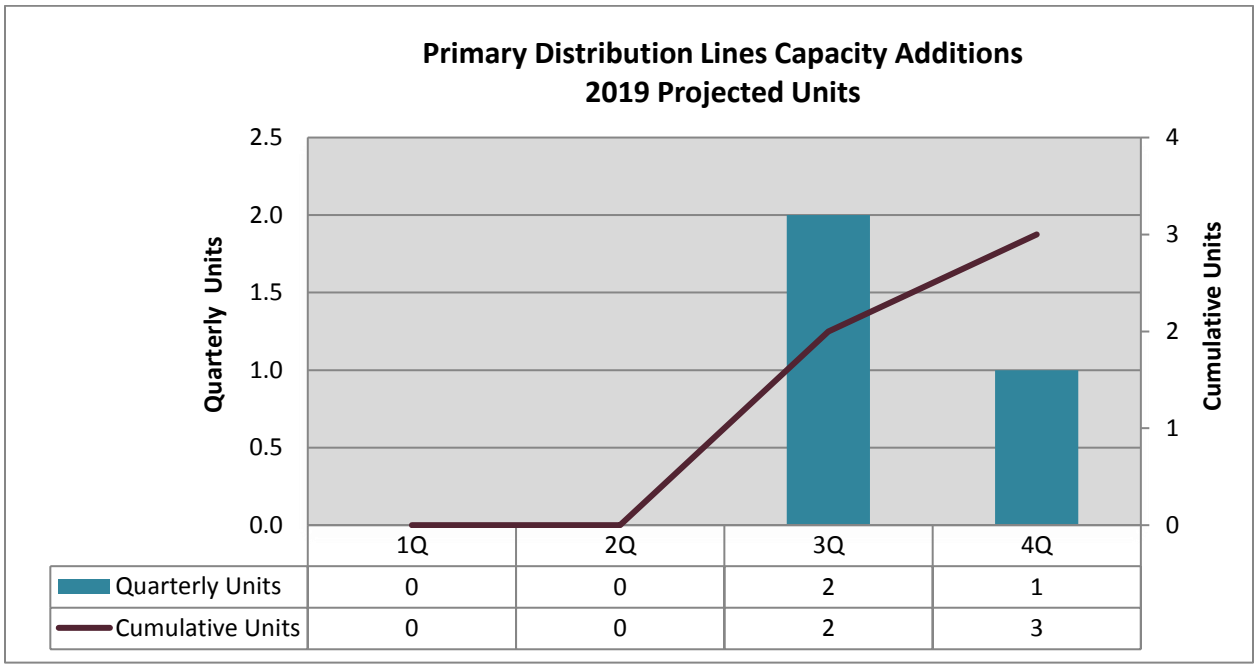
Figure 1.K.3: Primary Distribution Lines Capacity Additions 2019 Projected FTEs



1.K.4: 2019 Program Units

Figure 1.K.4 shows the number of distribution line capacity additions to be completed in 2019 under this program. This chart will serve as a tracking mechanism over the course of the year, and reflects the scope of work planned to be accomplished as well as the scope of work left to be performed. Estimates of cost, units of work, and schedules for that work may evolve over time. The units shown below are projects.

Figure 1.K.4: Primary Distribution Lines Capacity Additions 2019 Projected Units



Section 1.L: Bulk Transformer Outage Mitigation

1.L.1: 2019 Program Scope

This program is to provide system reinforcements by installing a second bulk supply transformer, building a new bulk supply substation, or reconductoring high voltage distribution lines to provide the system redundancy required to facilitate system maintenance and avoid load curtailments during a bulk substation transformer outage.

Evaluation of potential projects includes the analyses of the robustness of the system during off peak season when a planned outage of a bulk supply transformer might occur for maintenance purposes. The criteria specifies that for the planned outage of a bulk supply transformer and the loss of a single high voltage distribution line, transmission line or generating unit while supplying 65% of projected peak system load, the system shall operate with all equipment at or below emergency thermal limits and within voltage limits.

1.L.2: 2019 Program Capital Investments

There are no projected capital expenditures expected in this program for 2019.

Section 1.M: Rebuild High Voltage Distribution Lines

1.M.1: 2019 Program Scope

This program is designed to rebuild and/or reconductor existing high voltage distribution circuits that are in poor condition, require additional capacity, require additional lighting protection, or need additional system ties.

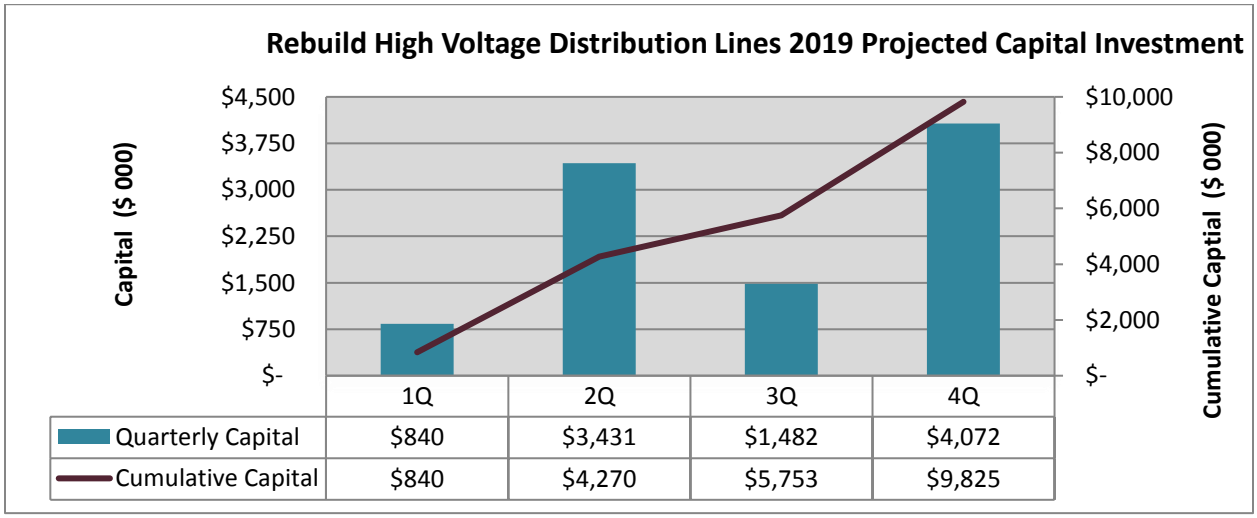
These projects were generally selected on the basis of:

1. Greatest number of customers
2. Outage history
3. Condition of the facilities
4. System operating parameters
5. Workload management

1.M.2: 2019 Program Capital Investments

Figure 1.M.2 represents the projected capital expenditures this program in 2019. AIC estimates the 2019 program cost to be approximately $9.8 million in capital investment, plus associated expenses. Estimates of cost, units of work, and schedules for that work, may evolve over time.

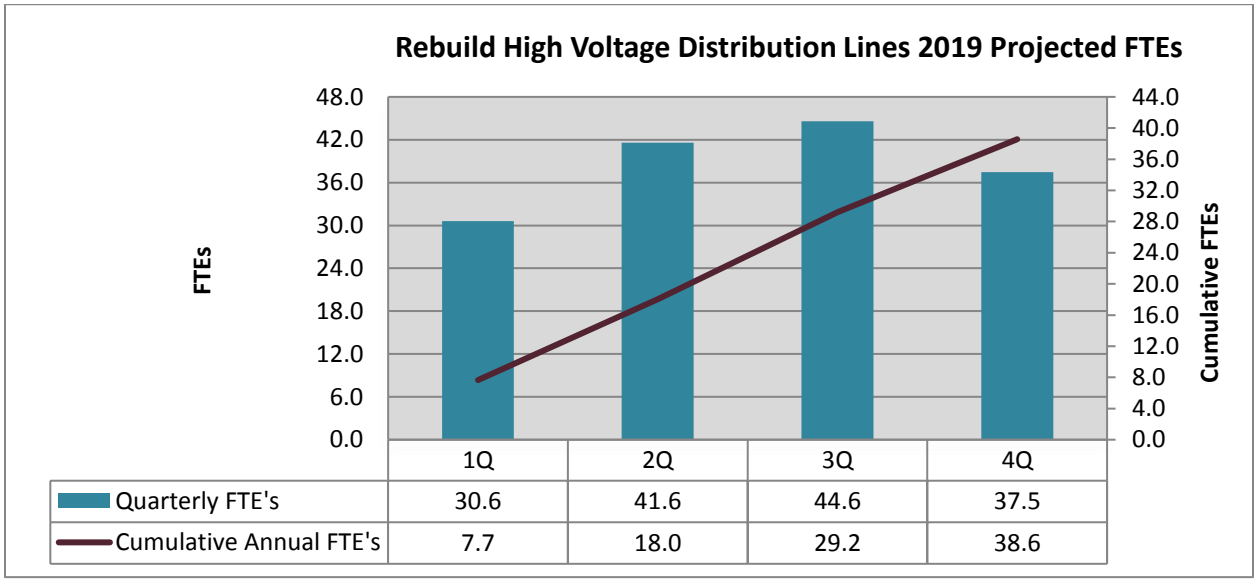
Figure 1.M.2: Rebuild High Voltage Distribution Lines 2019 Capital Investments



1.M.3: 2019 Program FTEs

Figure 1.M.3 represents the projected FTEs required to perform the scheduled scope of work for this program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision and craft.

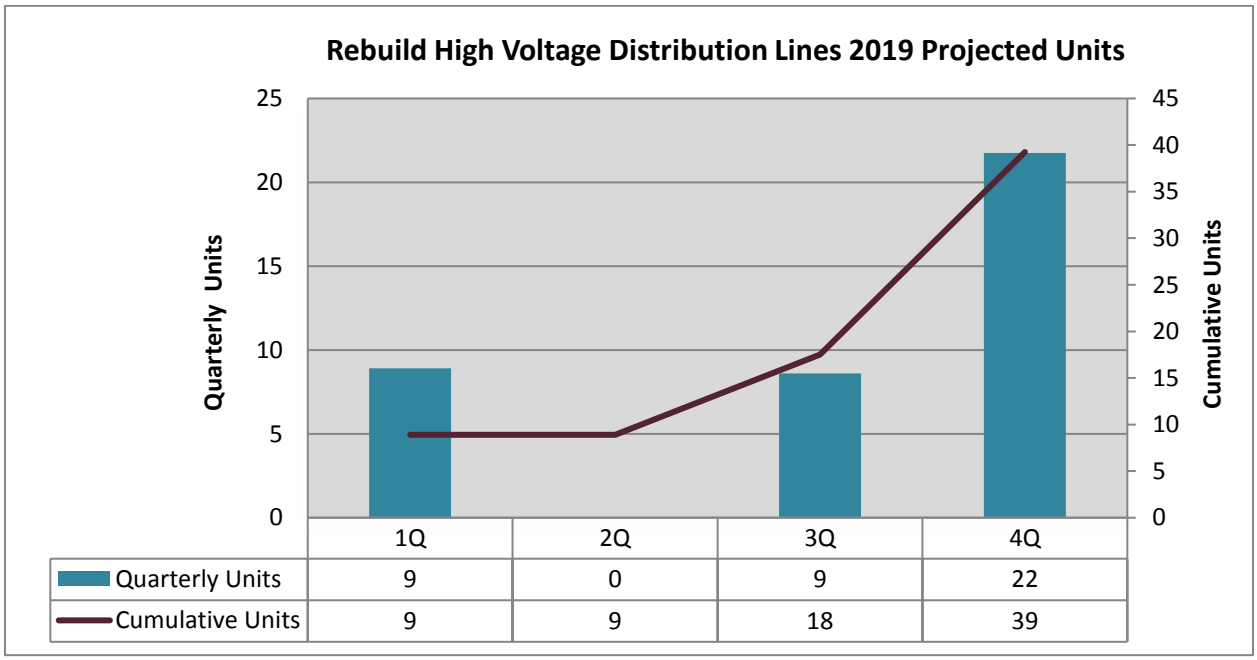
Figure 1.M.3: Rebuild High Voltage Distribution Lines 2019 Projected FTEs



1.M.4: 2019 Program Units

Figure 1.M.4 shows the units to be completed under this program in 2019. This chart will serve as a tracking mechanism over the course of the year, and reflects the scope of work planned to be accomplished as well as the scope of work left to be performed. Estimates of cost, units of work, and schedules for that work may evolve over time. The units shown below are miles.

Figure 1.M.4: Rebuild High Voltage Distribution Lines 2019 Projected Units



Section 1.N: Expand Bulk Supply Substations

1.N.1: 2019 Program Scope

This program will construct new bulk supply substations (e.g., 161/69 kV, 138/69 kV, and 138/34.5 kV), or install new bulk supply transformers at existing substation locations, and implement associated line and equipment reinforcements.

1.N.2: 2019 Program Capital Investments

There are no projected capital expenditures expected in this program for 2019.

Section 1.O: Underground Primary Distribution Cable

1.O.1: 2019 Program Scope

This program will replace or inject underground cable in 2019 that has been identified through historical outage information and engineering analysis. These cables may be either individual or multiple cable sections within an underground system.

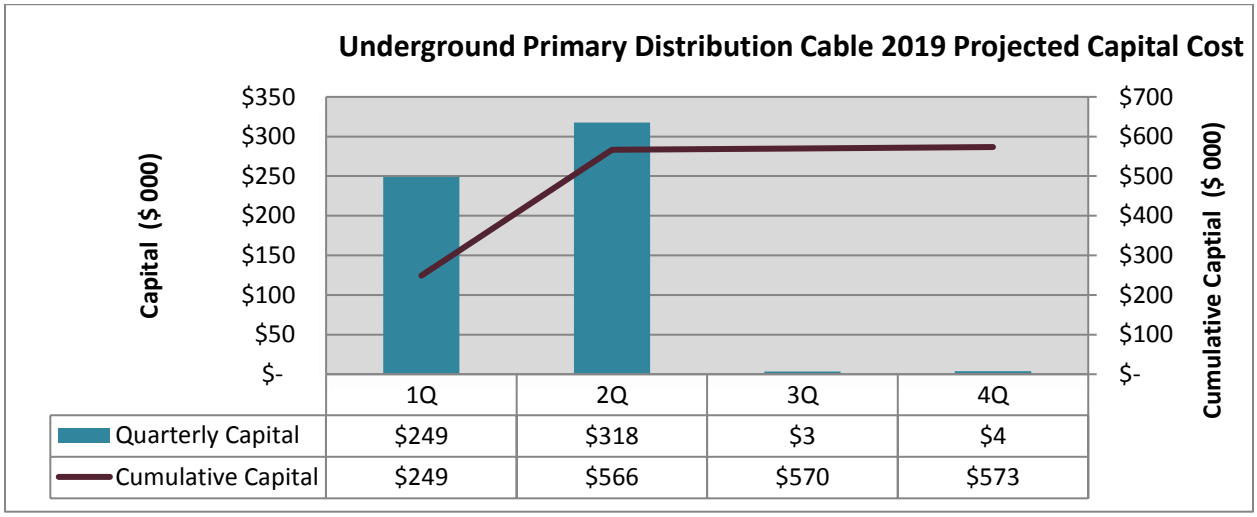
These projects were generally selected on the basis of:

1. Historical outage information
2. Age of the cable
3. Engineering analysis
4. Greatest number of customers
5. Workload management

1.O.2: 2019 Program Capital Investments

Figure 1.O.2 represents the projected capital expenditures for this program in 2019. AIC estimates the 2019 program cost to be approximately $0.57 million in capital investment, plus associated expenses. Estimates of cost, units of work, and schedules for that work may evolve over time.

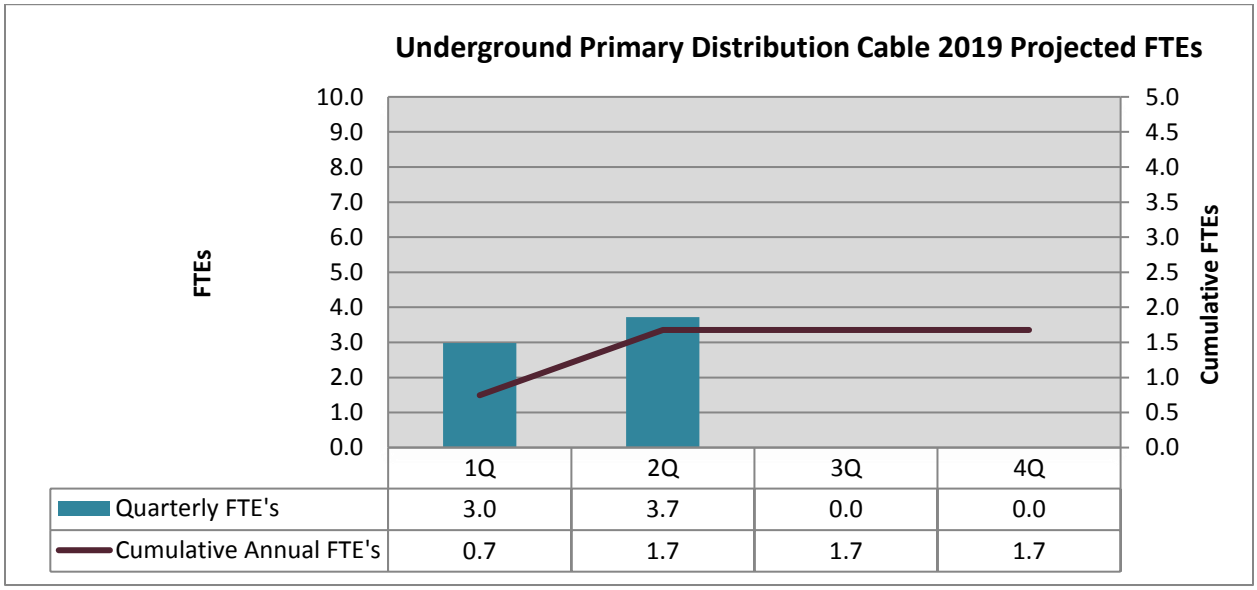
Figure 1.O.2: Underground Primary Distribution Cable 2019 Capital Investments



1.O.3: 2019 Program FTEs

Figure I.O.3 represents the projected FTEs required to perform the scheduled scope of work for this program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision and craft.

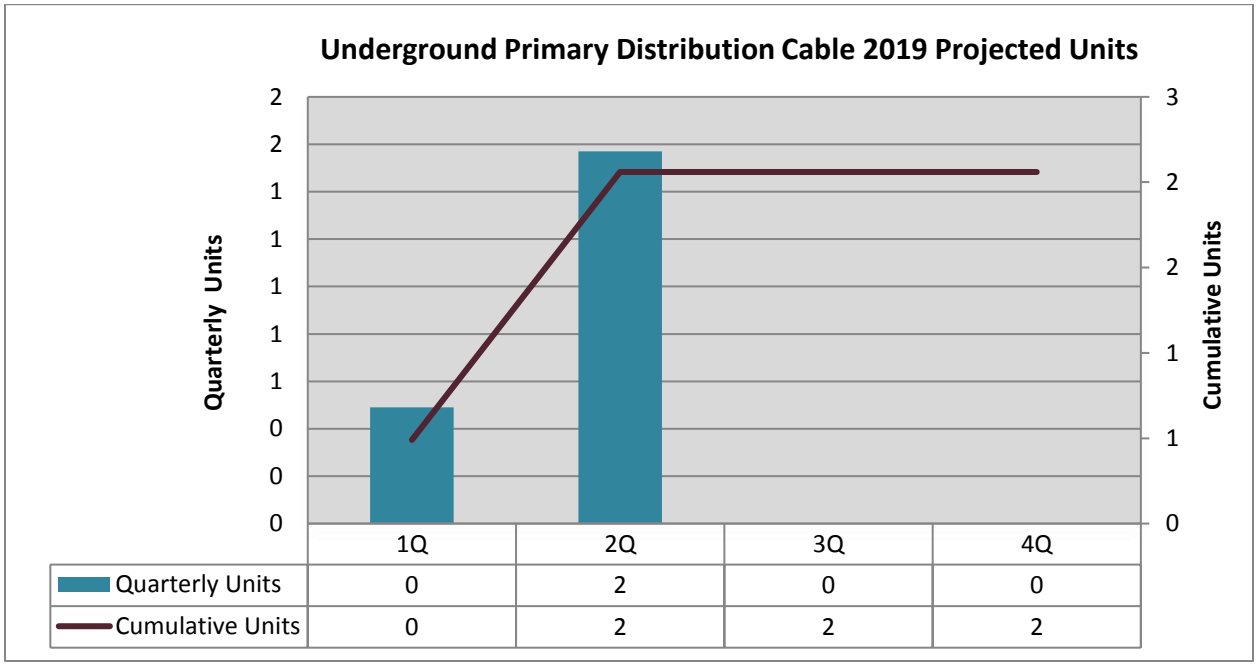
Figure 1.O.3: Underground Primary Distribution Cable 2019 Projected FTEs



1.O.4: 2019 Program Units

Figure 1.O.4 shows the units to be replaced in 2019 under this program. This chart will serve as a tracking mechanism over the course of the year, and reflects the scope of work planned to be accomplished as well as the scope of work left to be performed. Estimates of cost, units of work, and schedules for that work may evolve over time. The units shown are miles.

Figure 1.O.4: Underground Primary Distribution Cable 2019 Projected Units



Section 1.P: System Tie Primary Distribution

1.P.1: 2019 Program Scope

This program plans to build or reconductor primary distribution circuits to tie primary distribution circuits together for better operating efficiency and reliability. This could include making distribution ties between adjacent substations, tying legacy company circuits together that are in closer proximity, or tying to other utility sources such as Co-Ops and municipalities.

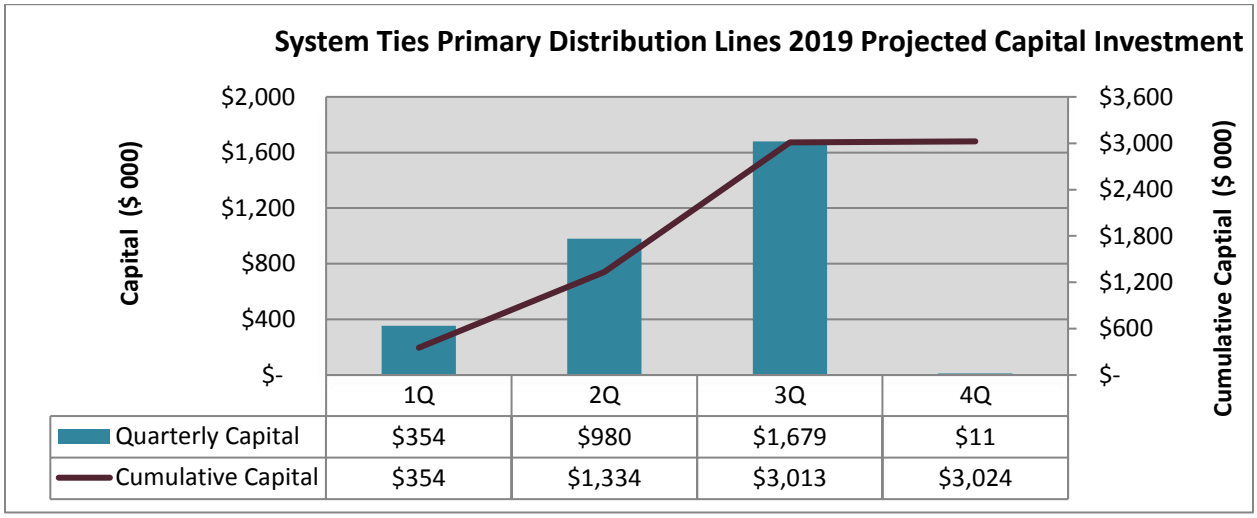
System tie projects were generally selected based on:

1. System benefit
2. Greatest number of customers.
3. Outage history
4. Workload management

1.P.2: 2019 Program Capital Investments

Figure 1.P.2 represents the projected capital expenditures for this program in 2019. AIC estimates the 2019 program cost to be approximately $3.0 million in capital investment, plus associated expenses. Estimates of cost, units of work, and schedules for that work may evolve over time.

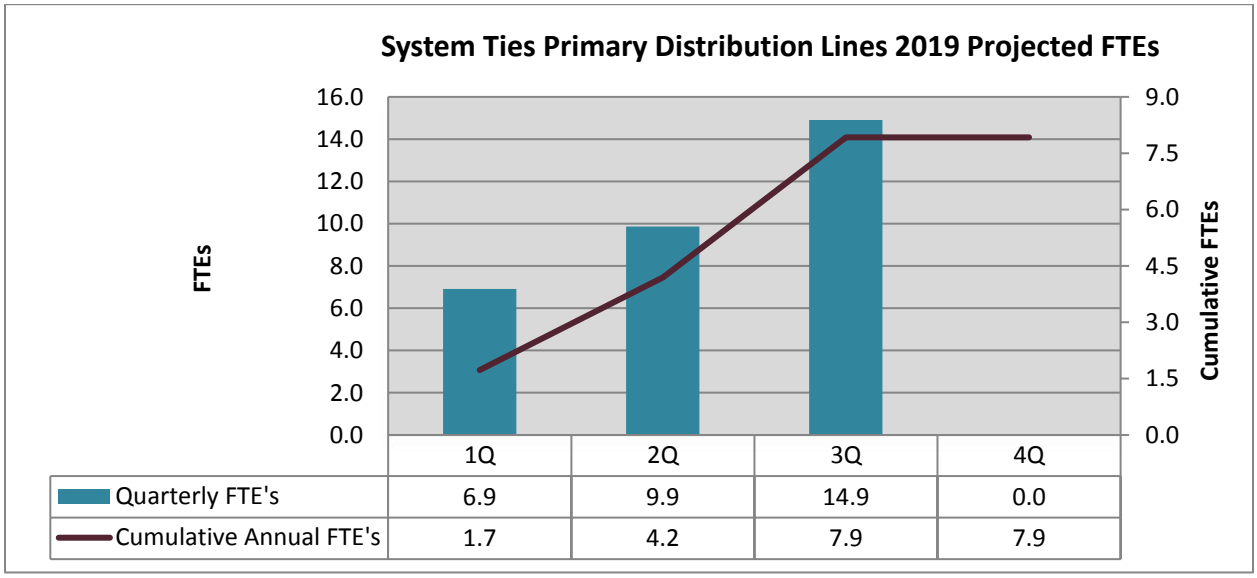
Figure 1.P.2: System Ties Primary Distribution Lines 2019 Capital Investments



1.P.3: 2019 Program FTEs

Figure 1.P.3 represents the projected FTEs required to perform the scheduled scope of work for this program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision and craft.

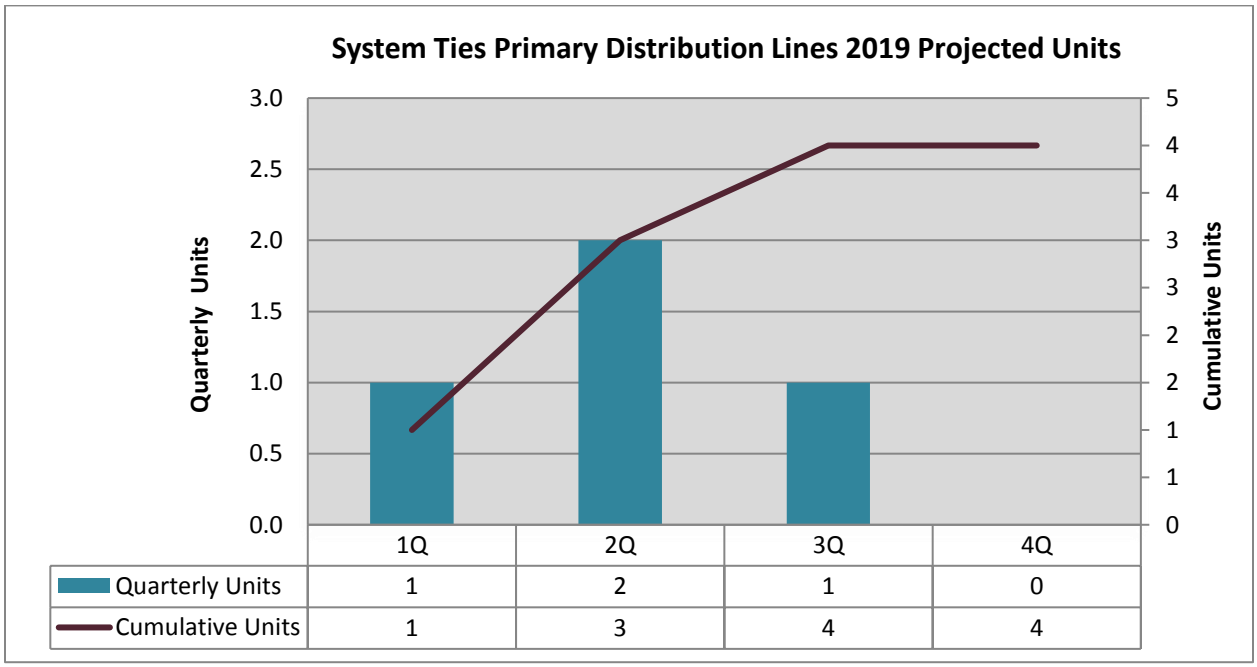
Figure 1.P.3: System Ties Primary Distribution Lines 2019 Projected FTEs



1.P.4: 2019 Program Units

Figure 1.P.4 shows the units to be replaced in 2019 under this program. This chart will serve as a tracking mechanism over the course of the year, and reflects the scope of work planned to be accomplished as well as the scope of work left to be performed. Estimates of cost, units of work, and schedules for that work may evolve over time. The units shown are projects.

Figure 1.P.4: System Ties Primary Distribution Lines 2019 Projected Units



Section 1.Q: CERT Remediation

1.Q.1: 2019 Program Scope

The program specifically targets existing CERT and potential CERT customers that have exceeded the reliability criteria for two consecutive years. These projects may include such items as rebuilding portions of distribution circuits, building new circuit ties, or installation of targeted distribution automation schemes.

These projects were generally selected on the bases of:

1. Number of existing or potential CERT customers
2. Historical outage information
3. Scope of each individual project
4. Workload management

1.Q.2: 2019 Program Capital Investments

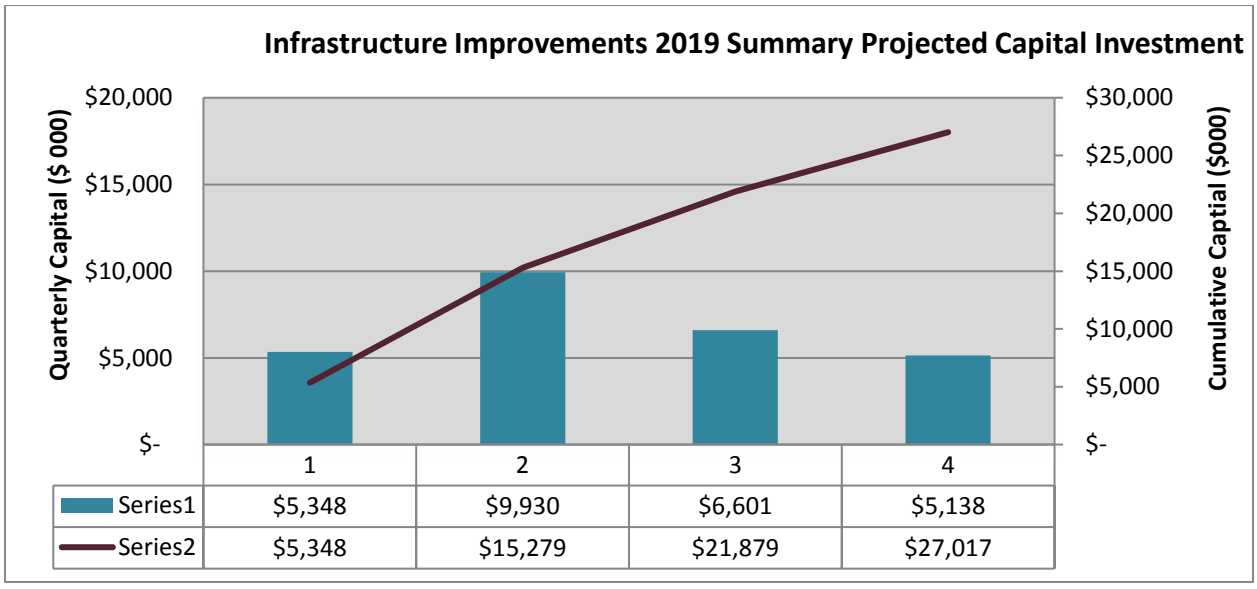
There are no projected capital expenditures expected in this program for 2019.

Section 1.R: Infrastructure Improvement Summary

1.R.1: Summary 2019 Capital Expenditures

Figure 1.R.1 represents the projected total capital expenditures for the Infrastructure Improvement programs under the Infrastructure and Modernization portion of the Act, excluding the Training Facilities. The Training Facilities are shown separately. AIC estimates the summary cost to be $27.0 million in capital investment, plus associated expenses over the program period. Estimates of cost, scope of work, and schedules for that work may evolve over time.

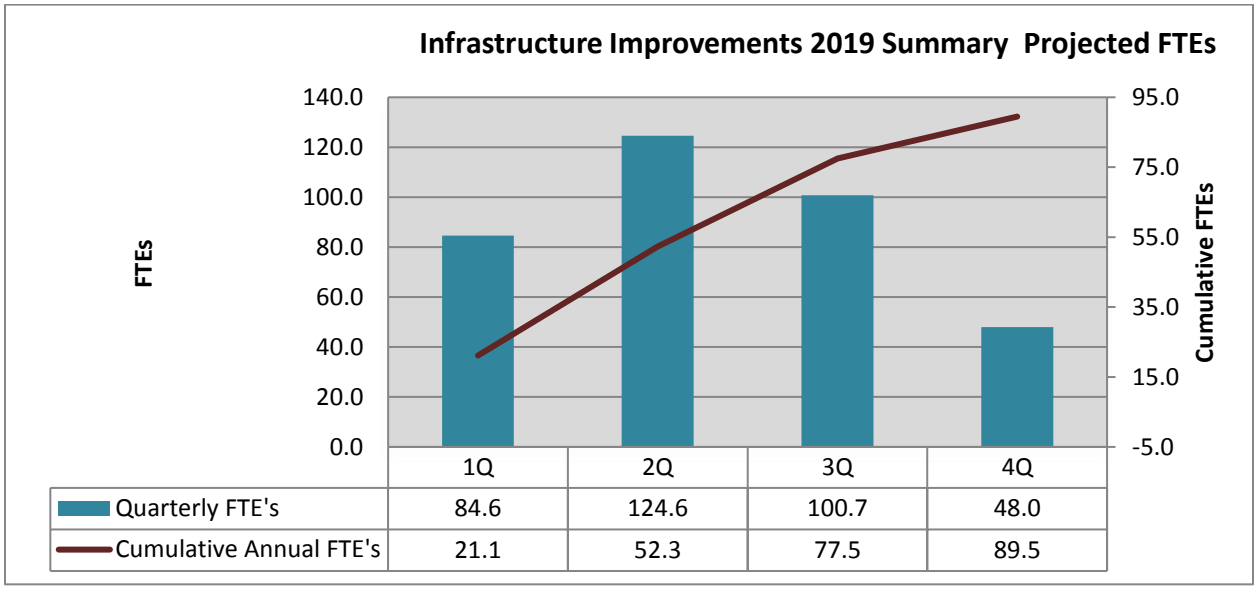
Figure 1.R.1: Infrastructure Improvement Summary 2019 Capital Investments



1.R.2: Program FTEs

Figure1.R.2 represents the projected FTEs required to perform the scheduled scope of work. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision and craft.

Figure 1.R.2: Infrastructure Improvement Summary 2019 Projected FTEs



Section 2: Training Facilities

Section 2A: Training Facilities

2.A.1: 2019 Program Scope

There are no projected expenditures under this program in 2019.

Section 3: Distribution Automation Programs

Section 3.A: Primary Distribution Automation

3.A.1: 2019 Program Scope

This program is designed to install primary distribution level automation schemes in a self- isolating mode. In some cases smart switching devices will be installed in order to facilitate the automatic isolation of the faulted section and restoration of the remaining load. In addition to installation of the appropriate line devices, this program will install metering and control on the distribution substation equipment if not equipped.

Benefits include, where possible, the limiting of the aggregate load experiencing a permanent outage due to a fault on a primary distribution backbone feeder to approximately half the load of the feeder. In some cases in may also avoid the loss of an entire feeder load due to the loss of supply, such as a substation bus, transformer, or high voltage distribution line.

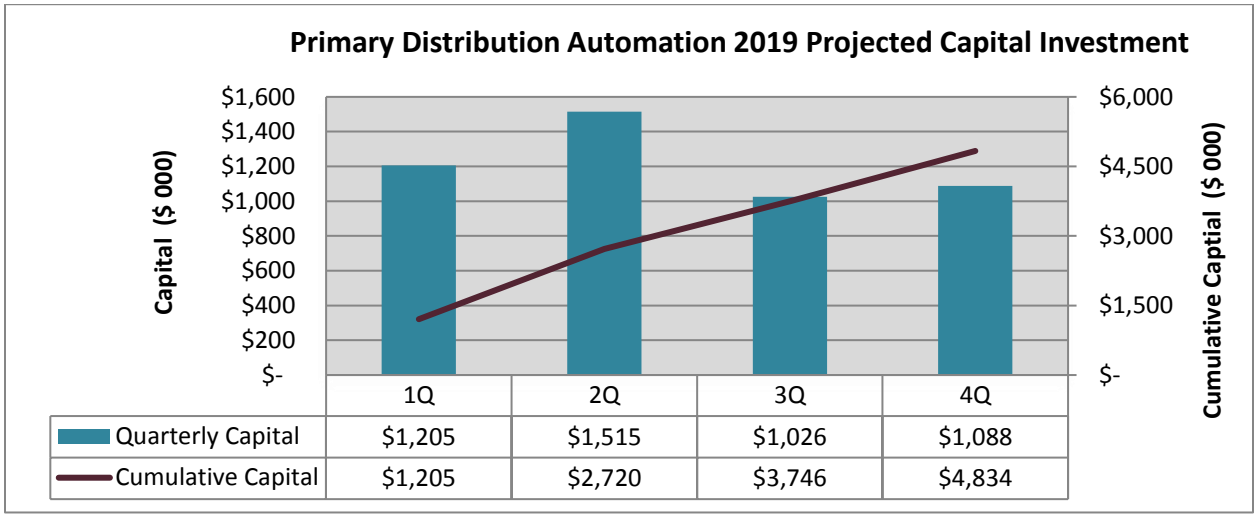
These projects were generally selected on the basis of:

1. Greatest number of customers
2. Historical outage information
3. Complexity of the project
4. Communication infrastructure requirements
5. Workload management

3.A.2: 2019 Program Capital Investments

Figure 3.A.2 represents the projected capital expenditures for this program in 2019. AIC estimates the 2019 program cost to be approximately $4.83 million in capital investment, plus associated expenses. Estimates of cost, units of work, and schedules for that work may evolve over time.

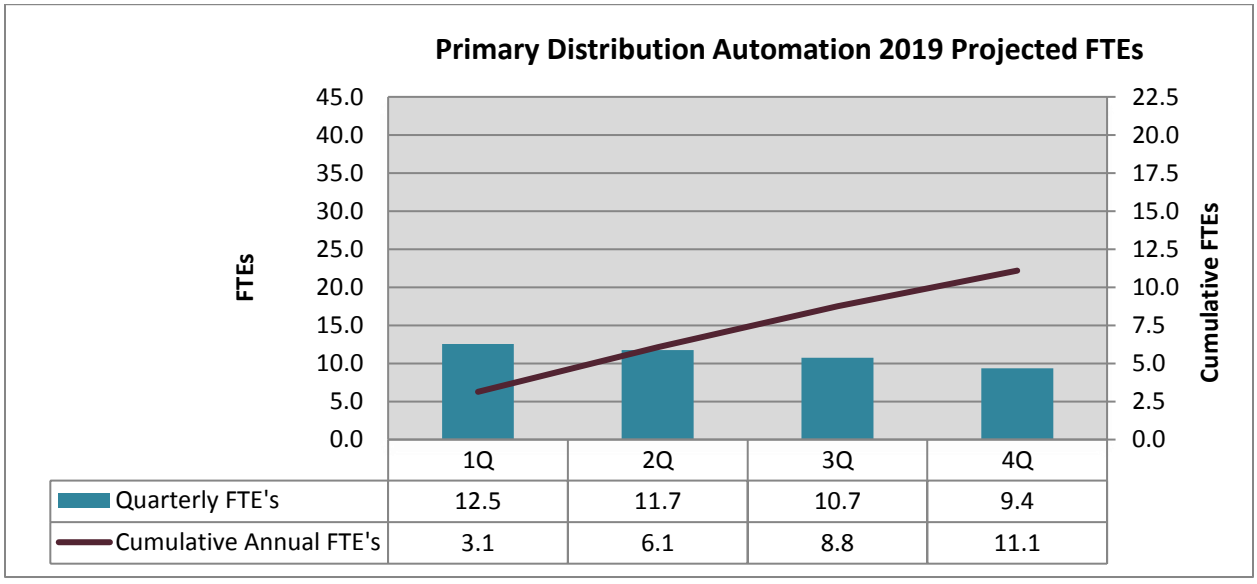
Figure 3.A.2: Primary Distribution Automation 2019 Capital Investments



3.A.3: 2019 Program FTEs

Figure 3.A.3 represents the projected FTEs required to perform the scheduled scope of work for this program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision and craft.

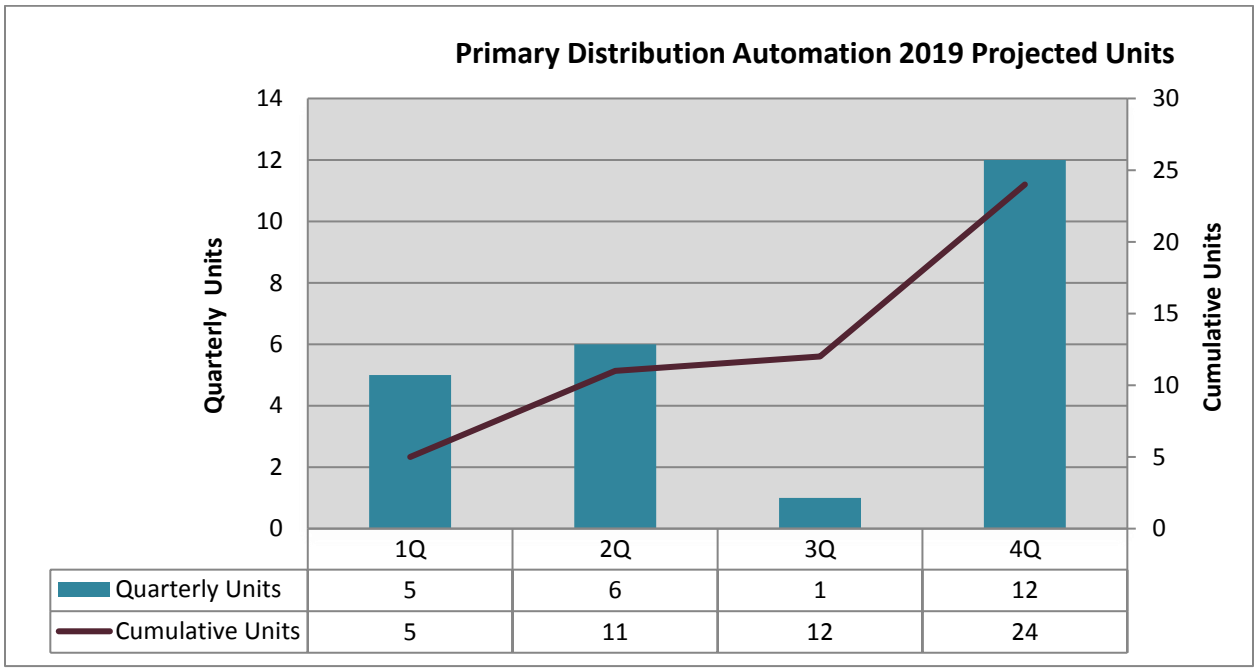
Figure 3.A.3: Primary Distribution Automation 2019 Projected FTEs



3.A.4: 2019 Program Units

Figure 3.A.4 shows the number of units to be completed in 2019 under this program. This chart will serve as a tracking mechanism over the course of the year, and reflects the scope of work planned to be accomplished as well as the scope of work left to be performed. Estimates of cost, units of work, and schedules for that work may evolve over time. The units shown are projects.

Figure 3.A.4: Primary Distribution Automation 2019 Projected Units



Section 3.B: Communication Infrastructure

3.B.1: 2019 Program Scope

The AIC's Communications Infrastructure program is foundational to allowing the other Smart Grid programs to obtain their desired benefits. This program will focus on delivering secure, performance-driven communications solution(s). The program will leverage a combination of different communication technologies due to tradeoffs in cost, coverage, bandwidth, latency, reliability, etc. Both public cellular and private RF communications will be converged, as appropriate, onto Internet Protocol (IP) based architecture.

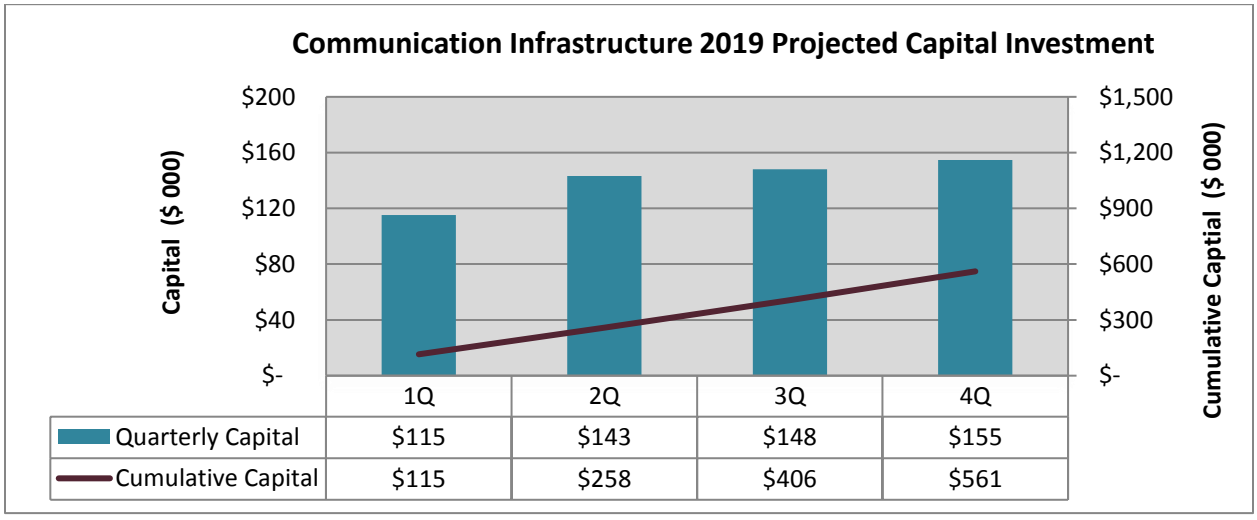
In 2019, AIC will continue the planning, design and procurement phases for the Smart Grid Communications Network (SGCN). The design and deployment activities will address the core SGCN requirements of performance, security, manageability, upgradeability, and reliability as aligned with the smart grid application(s) being supported. Multi-layered network communications models will incorporate Internet Protocol (IP) services to 1) ensure maximum interoperability based upon current standards that are both available and generally accepted as best practice and 2) to the maximum extent possible, comply with standards that have been deemed relevant by National Institute of Standards and Technology (NIST) and the Smart Grid Interoperability Panel (SGIP). As mentioned previously, not only will both public and private wireless services be used, but also wired technologies will be leveraged as appropriate to continue to address performance and cyber security requirements, as well as to optimize costs. Cyber security (to include, but not be limited to, the implementation of best-practice security processes, procedures, standards and technologies) will be incorporated from an end-to-end, holistic perspective starting in the initial years of planning, design and deployment. The

footprint of the private wireless will be expanded to cover a larger portion of the AIC territory with addition of two new 900 MHz master radio locations and three new 3.65 GHz WiMAX Master radio locations. This will reduce overall long-term cost and increase responsiveness to provide secure control for field distribution automation control applications.

3.B.2: 2019 Program Capital Investments

Figure 3.B.2 represents the projected capital expenditures for this program in 2019. AIC estimates the 2019 program cost to be approximately $0.56 million in capital investment, plus associated expenses. Estimates of cost, units of work, and schedules for that work may evolve over time.

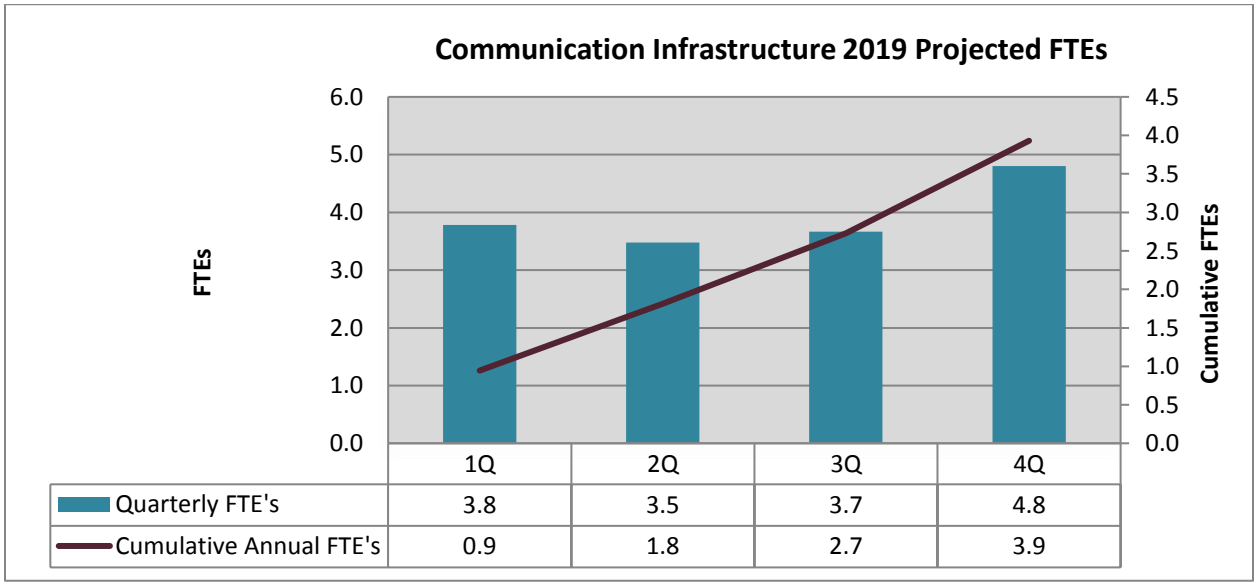
Figure 3.B.2: Communication Infrastructure 2019 Capital Investments



3.B.3: 2019 Program FTEs

Figure 3.B.3 represents the projected FTEs required to perform the scheduled scope of work for this program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision and craft.

Figure 3.B.3: Communication Infrastructure 2019 Projected FTEs



Section 3.C: High Voltage Distribution Relaying

3.C.1: 2019 Program Scope

This program is to replace electro-mechanical relays on the high voltage distribution system with microprocessor based relays. Some of the expected benefits are

1. Provide distance to fault data to system control to accelerate outage restoration
2. Relay health status continuously monitored by SCADA
3. Detailed fault data for post disturbance evaluation
4. Reduced maintenance due to longer testing intervals.

Project selection is generally based on.

1. Historical performance.
2. Greatest number of customers
3. Complexity of project
4. Workload management

3.C.2: 2019 Program Capital Investments

There are no projected expenditures under this program in 2019.

Section 3.D: Distribution Substation Metering

3.D.1: 2019 Program Scope

This program will add distribution substation transformer and circuit load metering at select substations that currently do not have remote read capability. These meters will be remotely read and reported through the SCADA system. Benefits include the ability to accurately collect load information for engineers to determine the most efficient options for upgrading the electric system.

Project selection will be generally based on.

1. Load vs. equipment ratings.
2. Communication availability.
3. Criticality of load.
4. Workload management

3.D.2: 2019 Program Capital Investments

There are no projected expenditures under this program in 2019.

Section 3.E: High Voltage Distribution Automation

3.E.1: 2019 Program Scope

This program will install smart switching devices on the high voltage distribution system in order to facilitate the automatic isolation of faulted line sections and the restoration of the remaining loads. It also includes the installation of remote fault current indicators (FCI) at select locations to help identify fault location. Benefits include a reduction in the amount of customers experiencing an extended outage, and faster fault location.

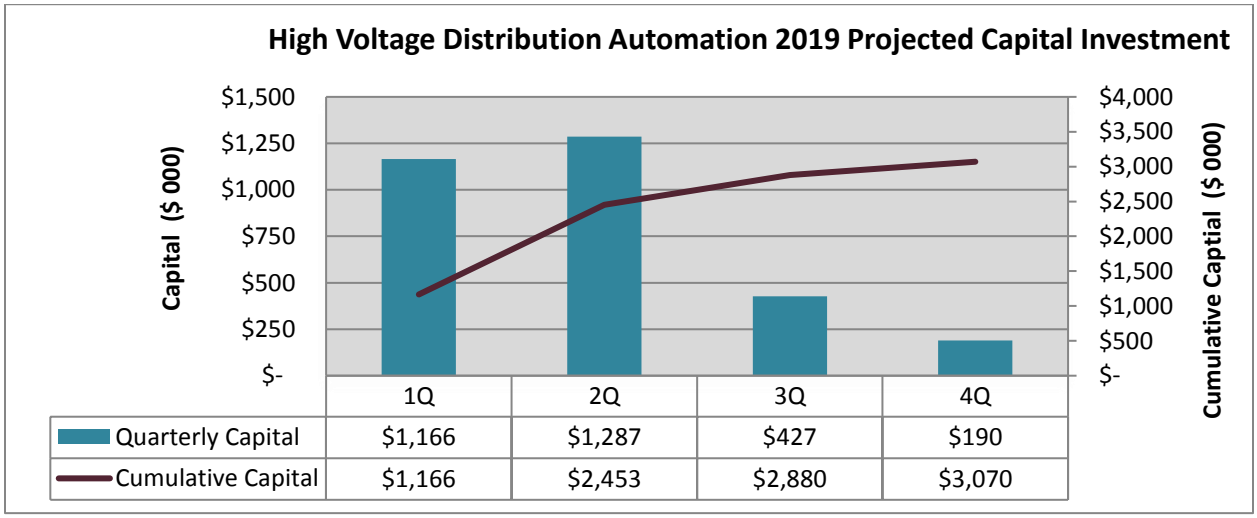
Projects were generally selected on the basis of:

1. Greatest number of customers
2. Circuit configuration
3. System benefit
4. Historical outage information
5. Communication availability
6. Workload Management

3.E.2: 2019 Program Capital Investments

Figure 3.E.2 represents the projected capital investment for this program in 2019. AIC estimates the 2019 program cost to be approximately $3.1 million in capital investment, plus associated expenses. Estimates of cost, units of work, and schedules for that work may evolve over time.

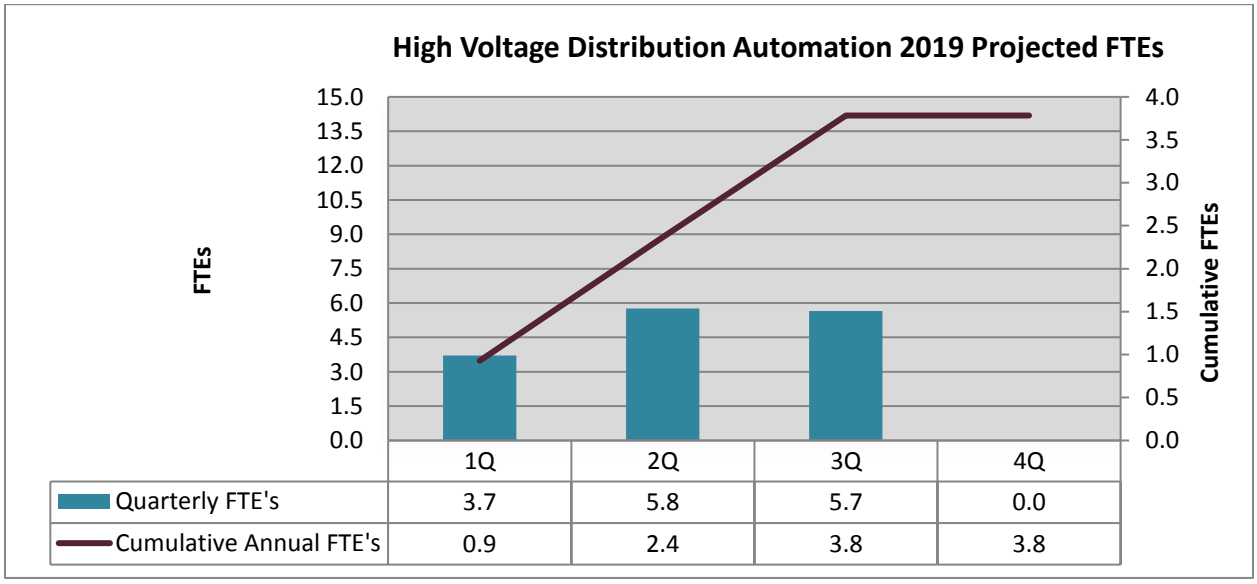
Figure 3.E.2: High Voltage Distribution Automation 2019 Capital Investments



3.E.3: 2019 Program FTEs

Figure 3.E.3 represents the projected FTEs required to perform the scheduled scope of work for this program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision and craft.

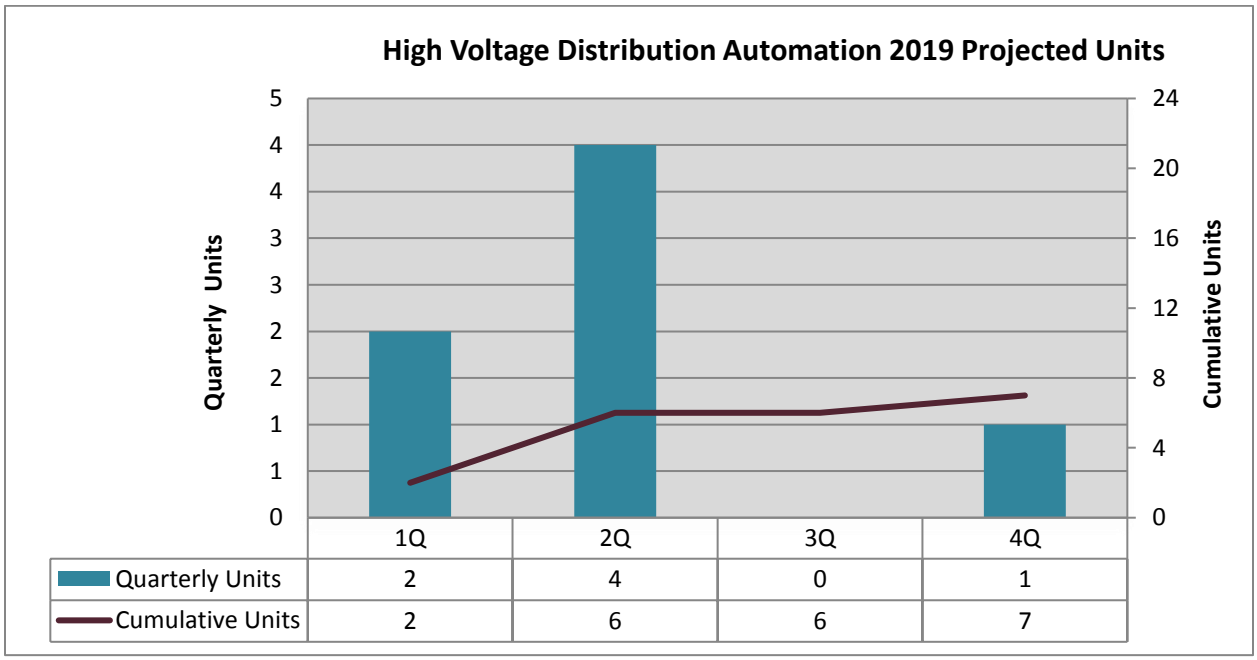
Figure 3.E.3: High Voltage Distribution Automation 2019 Projected FTEs



3.E.4: 2019 Program Units

Figure 3.E.4 shows the number of units to be completed in 2019 under this program. This chart will serve as a tracking mechanism over the course of the year, and reflects the scope of work planned to be accomplished as well as the scope of work left to be performed. Estimates of cost, units of work, and schedules for that work may evolve over time. The units shown below are projects.

Figure 3.E.4: High Voltage Distribution Automation 2019 Projected Units



Section 3.F: Test Bed

3.F.1: 2019 Program Scope

There are no projected expenditures under this program in 2019.

Section 3.G: Underground Network Modernization

3.G.1: 2019 Program Scope

Ameren Illinois has over 150 network protectors in service. They are becoming increasingly difficult to maintain. This program is to replace the 1950 vintage network protectors with modern solid state network protectors. The new protectors will have SCADA remote communication and monitoring capabilities. This will ensure the safe isolation of network faults and allow for maintenance without time consuming switching or arc flash mitigation.

3.G.2: 2019 Program Capital Investments

There are no projected expenditures under this program in 2019.

Section 3.H: Distributed Energy Resource Integration

3.H.1: 2019 Program Scope

As more distributed energy resources, including renewable resources, are added to the distribution grid, and our customers desire continued improvements in electric system reliability and resiliency, Ameren Illinois will need to better understand and develop the expertise to safely, efficiently, and cost-effectively integrate distributed energy resources into the electric distribution grid, up to and including the ability to island sections of the grid as appropriate. This program is to install at and in the vicinity of Ameren Illinois' Technology Applications Center (TAC) in Champaign Illinois distributed energy resources (battery storage, solar, wind, and natural gas generation), demand management systems, communication and control systems, and associated distribution lines, transformers, and switchgear to provide the Smart Grid enabling infrastructure to test distributed energy resource control, integration, dispatch, system islanding, microgrid functionality, and local demand management.

This Smart Grid enabling infrastructure will allow Ameren Illinois to test and develop the capabilities to manage demand, control and economically dispatch customer and utility owned distributed energy resources to enable grid congestion management, assist in voltage control, provide operating reserves, provide frequency regulation, and increase reliability. Ameren Illinois currently does not have the appropriate infrastructure to fully test and develop these capabilities. These capabilities will assist Ameren Illinois in the integration of distributed energy resources and the creation of microgrids throughout its electric delivery system, as such resources and facilities become available. This testing infrastructure will also enhance Ameren Illinois' on-grid smart grid testing capabilities available for external applicant technology testing.

3.H.2: 2019 Program Capital Investments

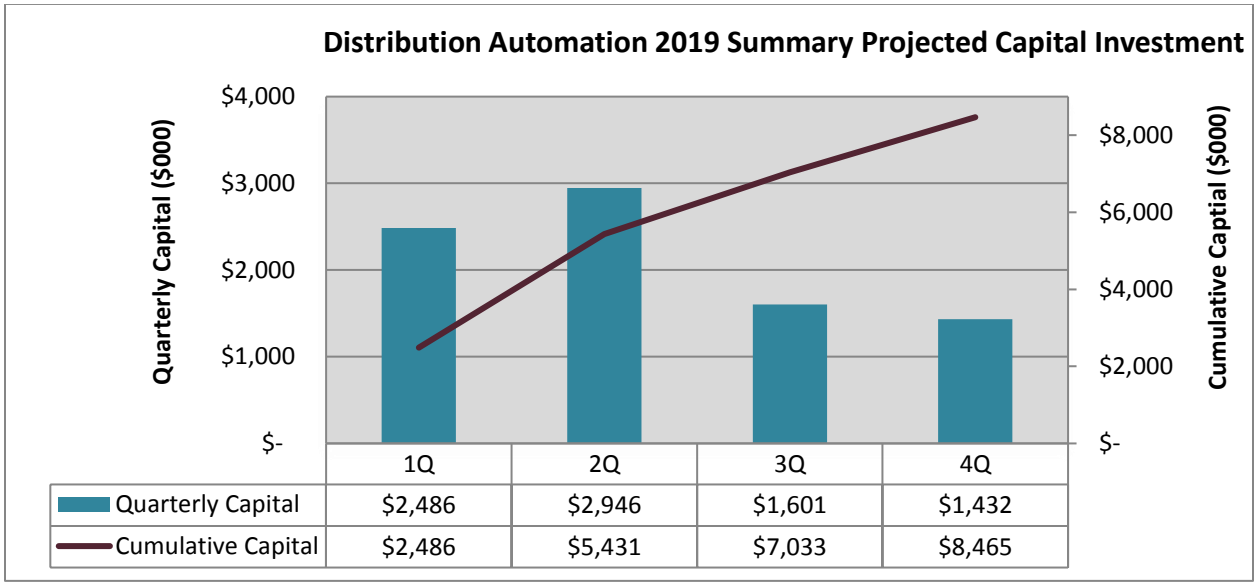
There are no projected expenditures under this program in 2019.

Section 3.I: Distribution Automation Summary

3.I.1: Summary Budget

Figure 3.I.1 represents the projected capital budget for the Distribution Automation portion of the Act's Smart Grid investment. It does not include the AMI program. AIC estimates the program cost to be $8.5 million in capital investment, plus associated expenses over the program period. Estimates of cost, and scope of work, and schedules for that work, may evolve over time.

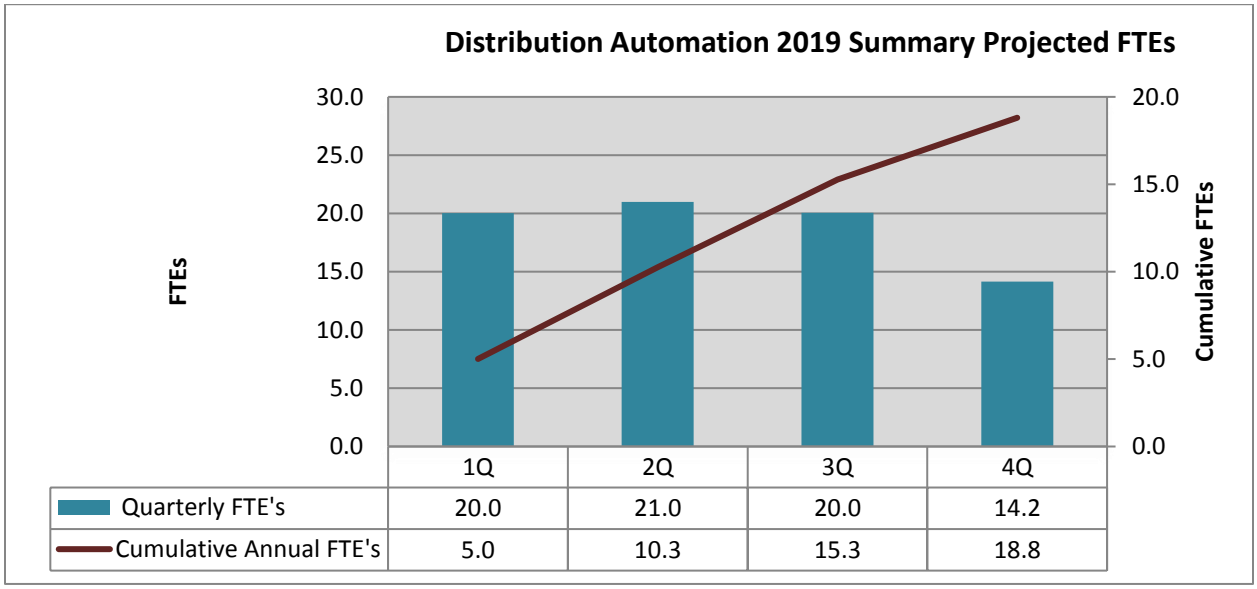
Figure 3.I.1: Distribution Automation 2019 Summary Capital Investments



3.I.2: Summary FTEs

Figure 3.I.2 represents the projected FTEs required to perform the scheduled scope of work for this summary program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision and craft.

Figure 3.I.2: Distribution Automation 2019 Summary FTEs



Section 4: Advanced Metering Infrastructure (AMI)

4.A.1: 2019 Program Scope

The 2019 AMI Plan objectives are:

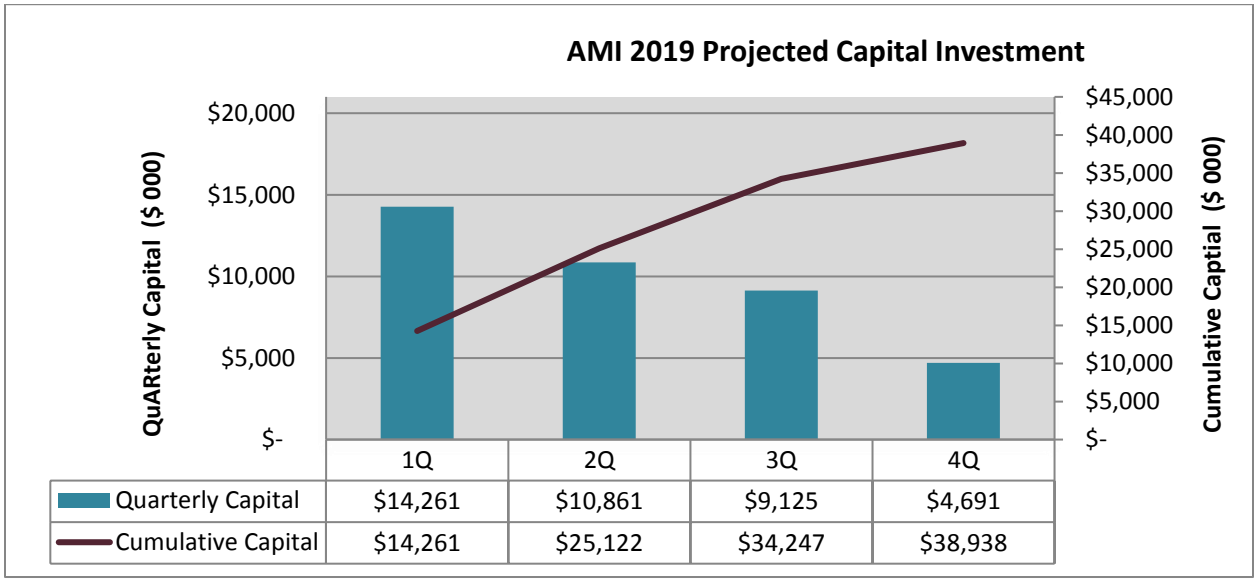
1. Implement Remote Connect/Disconnect Functionality
2. Deploy Revenue Protection Analytics
3. Provide Non Billing Interval Data to Retail Energy Suppliers
4. Develop Peak Time Rebate (PTR) program
5. Implement basic outage event processing
6. Implement Cybersecurity plans and testing
7. Additional Web Portal Enhancements including Alert Functionality
8. Enhance and Continue Customer Communications and stakeholder communications initiatives

There are approximately 175,000 electric AMI meters projected to be installed in 2019. A more detailed description can be found in the most recent AMI Plan as filed with the ICC, and in the AMI Plan update report submittal.

4.A.2: 2019 Program Capital Investments

Figure 4.A.2 represents the projected 2019 capital expenditures for this program. AIC estimates the 2019 program cost to be approximately $38.9 million in capital investment, plus associated expenses. Estimates of cost, units of work, and schedules for that work may evolve over time.

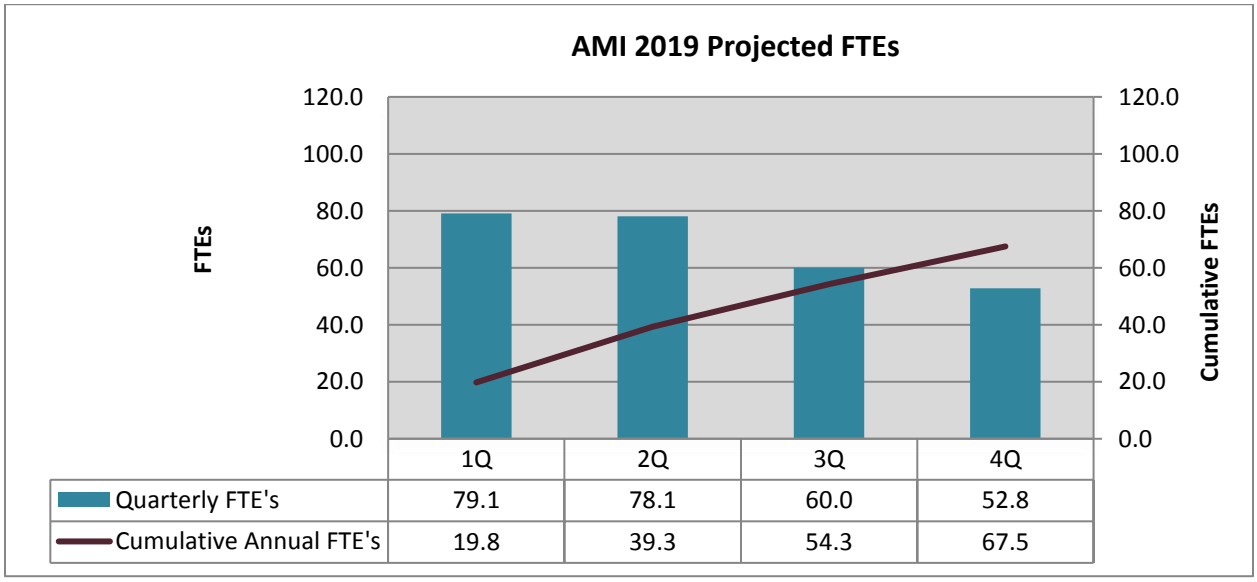
Figure 4.A.2: AMI 2019 Capital Investments



4.A.3: 2019 Program FTEs

Figure 4.A.3 represents the projected FTEs required to perform the scheduled scope of work for the AMI program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision and craft.

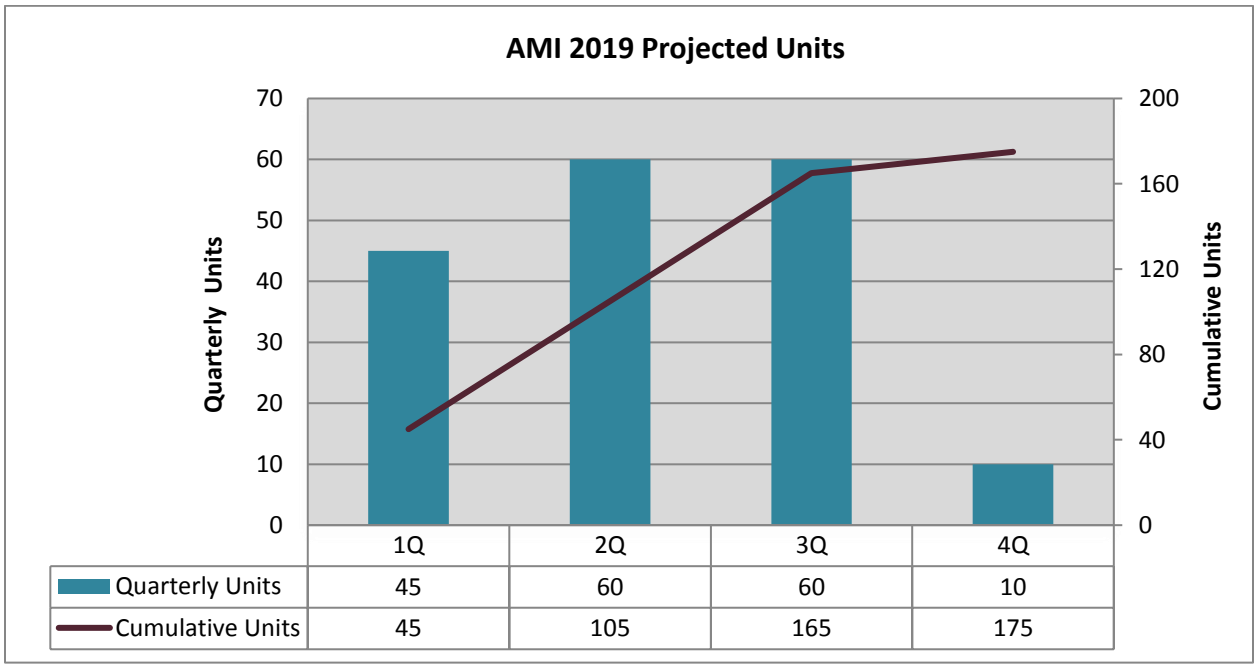
Figure 4.A.3: AMI 2019 Projected FTEs



4.A.4: 2019 Program Units

Figure 4.A.4 shows the number of meters to be installed in 2019 under this program. This chart will serve as a tracking mechanism over the course of the year, and reflects the scope of work planned to be accomplished as well as the scope of work left to be performed. Estimates of cost, units of work, and schedules for that work may evolve over time. The units shown below are electric meters (in thousands).

Figure 4.A.4: Advanced Metering Infrastructure 2019 Projected Units



Section 5: Volt/VAR Optimization

Section 5.A: High Voltage Volt/VAR Control

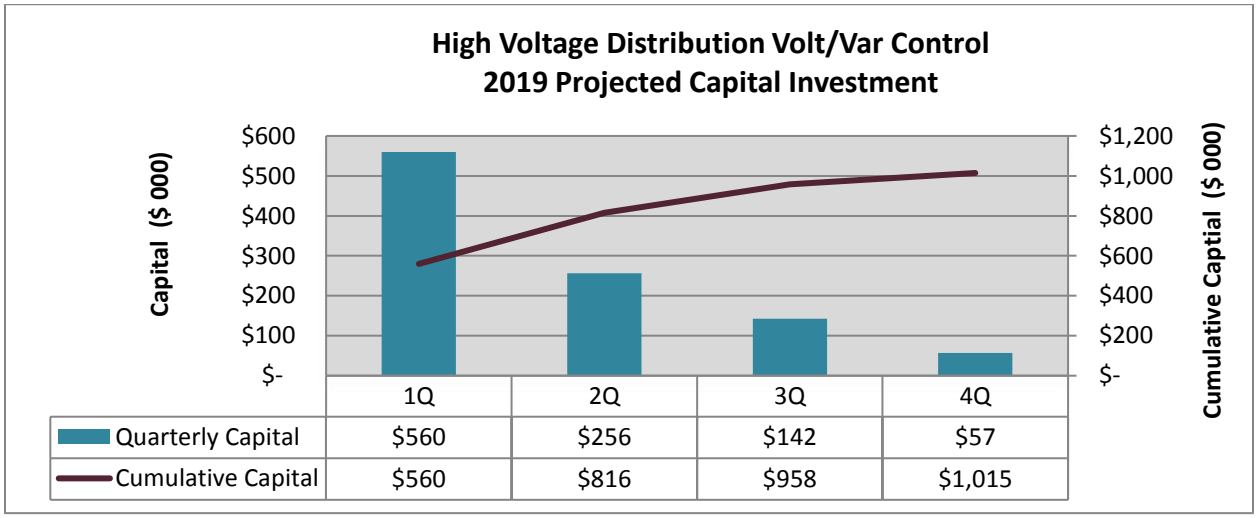
5.A.1: 2019 Program Scope

The intent of this program is to provide dynamic voltage control and optimal reactive power flow across the high voltage distribution system. Benefits include reducing energy losses due to circulating network flows and provide reduced voltage reductions to support optimal use of the system. The initial focus in on insuring all switched high voltage distribution capacitors have SCADA control and voltage indication as part of their intelligence.

5.A.2: 2019 Program Capital Investments

Figure 5.A.2 represents the projected capital expenditures for this program in 2019. AIC estimates the 2019 program cost to be approximately $1.01 million in capital investment, plus associated expenses. Estimates of cost, units of work, and schedules for that work may evolve over time.

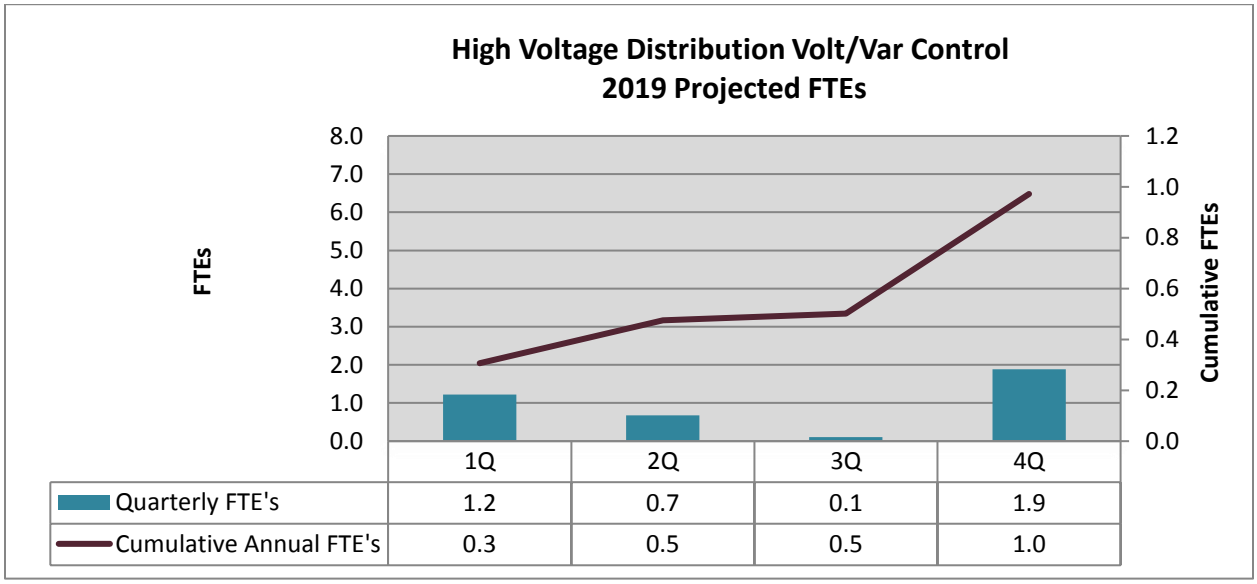
Figure 5.A.2: High Voltage Volt/VAR Control 2019 Capital Investments



5.A.3: 2019 Program FTEs

Figure 5.A.3 represents the projected FTEs required to perform the scheduled scope of work for this program in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, supervision and craft.

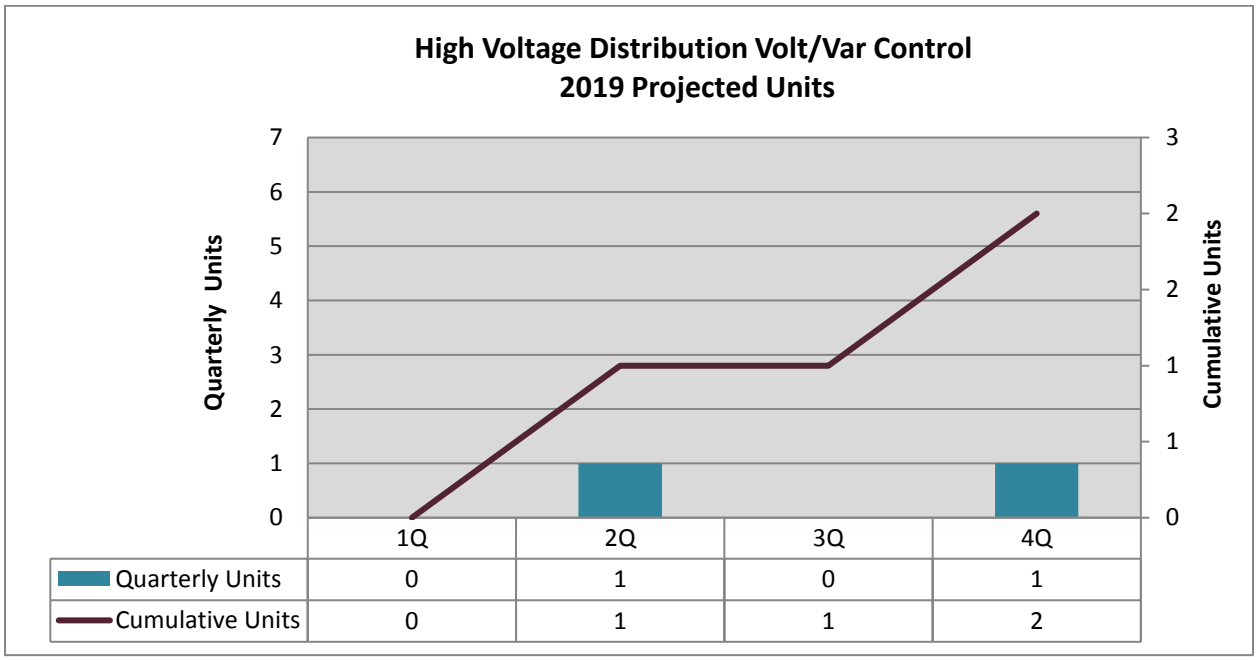
Figure 5.A.3: High Voltage Volt/VAR Control 2019 Projected FTEs



5.A.4: 2019 Program Units

Figure 5.A.4 shows the number of units to be completed under this program in 2019. This chart will serve as a tracking mechanism over the course of the year, and reflects the scope of work planned to be accomplished as well as the scope of work left to be performed. Estimates of cost, units of work, and schedules for that work may evolve over time. The units shown below are projects.

Figure 5A.4: High Voltage Distribution Volt/VAR Control 2019 Projected Units



Section 5.B. Primary Distribution Volt/VAR Control

5.B.1: 2019 Program Scope

This program is intended to provide dynamic voltage control and optimal reactive power flow on select primary distribution circuits. Benefits include reducing energy losses due to circulating network flows and/or provide voltage reductions to support optimal use of the system. Phase 1 (2013 engineering with 2014 construction) focused on insuring all switched low voltage distribution capacitors in the Metro-East area that were controlled by an obsolete system would interact with the new ADMS (Advanced Distribution Management System). Phase 2 (2016/2017 engineering with 2019 construction) will focus on a Volt/VAR Optimization (VVO) deployment across several AIC primary distribution level (<15kV) circuits by controlling switching capacitor banks, voltage regulators, and possibly transformer load tap changers (LTCs) using a VVO computerized control technology solution. This may require the addition of current/voltage monitoring, SCADA at each LTC, voltage regulator, and switched capacitor bank location.

5.B.2: 2019 Program Capital Investments

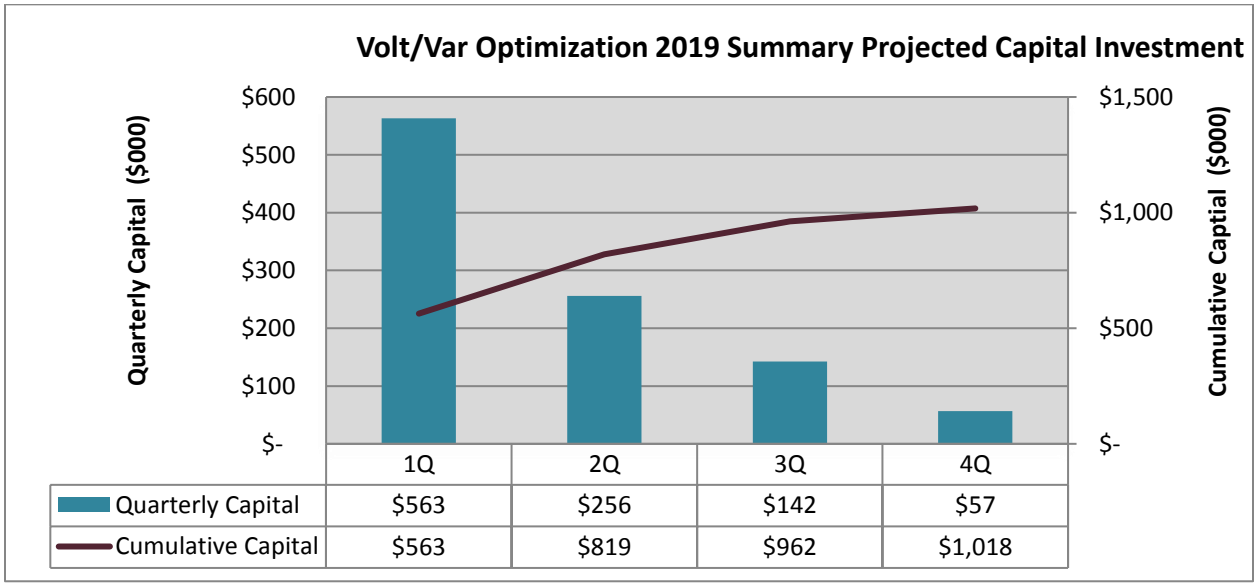
There are no projected expenditures under this program in 2019.

Section 5.C: Volt/VAR Optimization Summary

5.C.1: Summary Capital Investments

Figure 5.C.1 represents the projected capital expenditures for the Volt/VAR Optimization programs in 2019. AIC estimates the program cost to be $1.02 million in capital investment, plus associated expenses over the program period. Estimates of cost, scope of work, and schedules for that work may evolve over time.

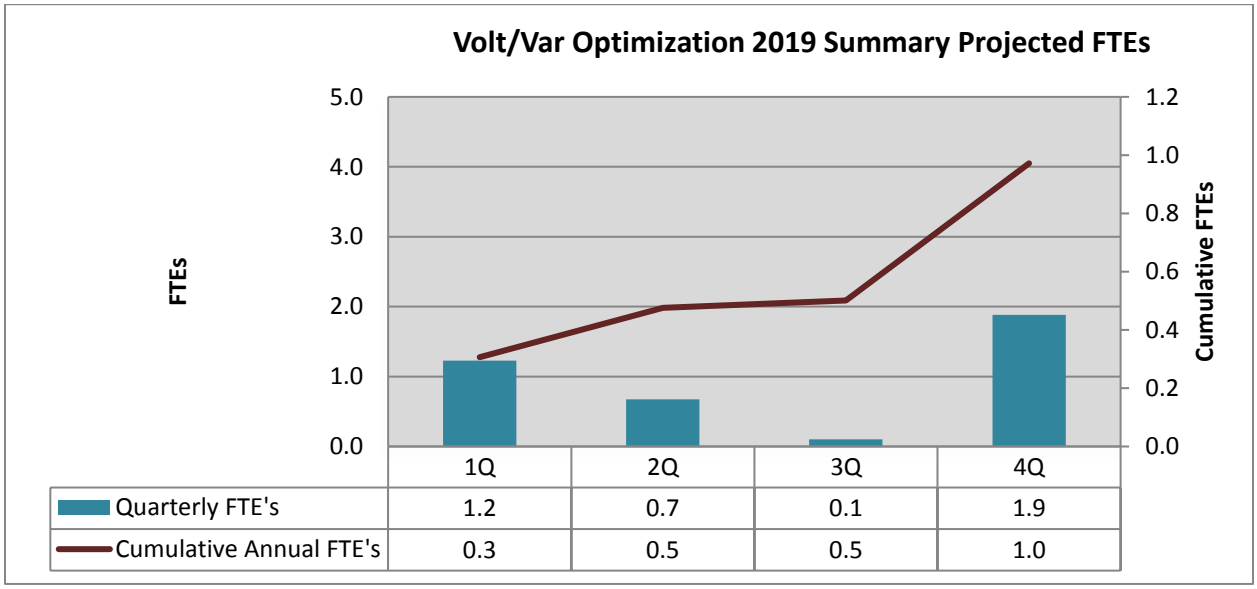
Figure 5.C.1: Volt/VAR Optimization 2019 Summary Capital Investments



5.C.2: Summary FTEs

Figure 5.C.2 represents the projected FTEs required to perform the scheduled scope of work in 2019. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, legal support, supervision and craft.

Figure 5.C.2: Volt/VAR Optimization 2019 Summary FTEs



Section 6: Software and Technology Enhancements

Section 6.A: Advanced Distribution Management System (ADMS)

There are no planned investments in this program for 2019.

Section 6.B: Replace Distribution Engineering Workstation (DEW)

6.B.1: 2019 Program Scope

The new engineering analysis software tool replaced the existing Distribution Engineering Workstation (DEW) platform. This software allows field engineers, planners, and others to model the low voltage distribution system for power load-flow, circuit protection, distributed generation, automation, etc. General scope for 2016 included purchasing the software and building the necessary interfaces between Ameren systems (G-tech, Byers, AMI, TLM, etc.) and the new tool. Training and rollout of the new tool started in 2015 and the workstation was completed in 2016.

The new distribution engineering workstation tool provided the following benefits:

1. Tool with advanced applications that can help engineers plan well into the future
2. Model distributed generation, UG meshed networks, battery storage, and distribution automation.
3. Model new technology, power load-flow, circuit protection, etc.

6.B.2: 2019 Program Capital Investments

There are no planned investments in this program for 2019.

Section 6.C: Software and Technology Enhancements Summary

6.C.1: Summary Capital Investments

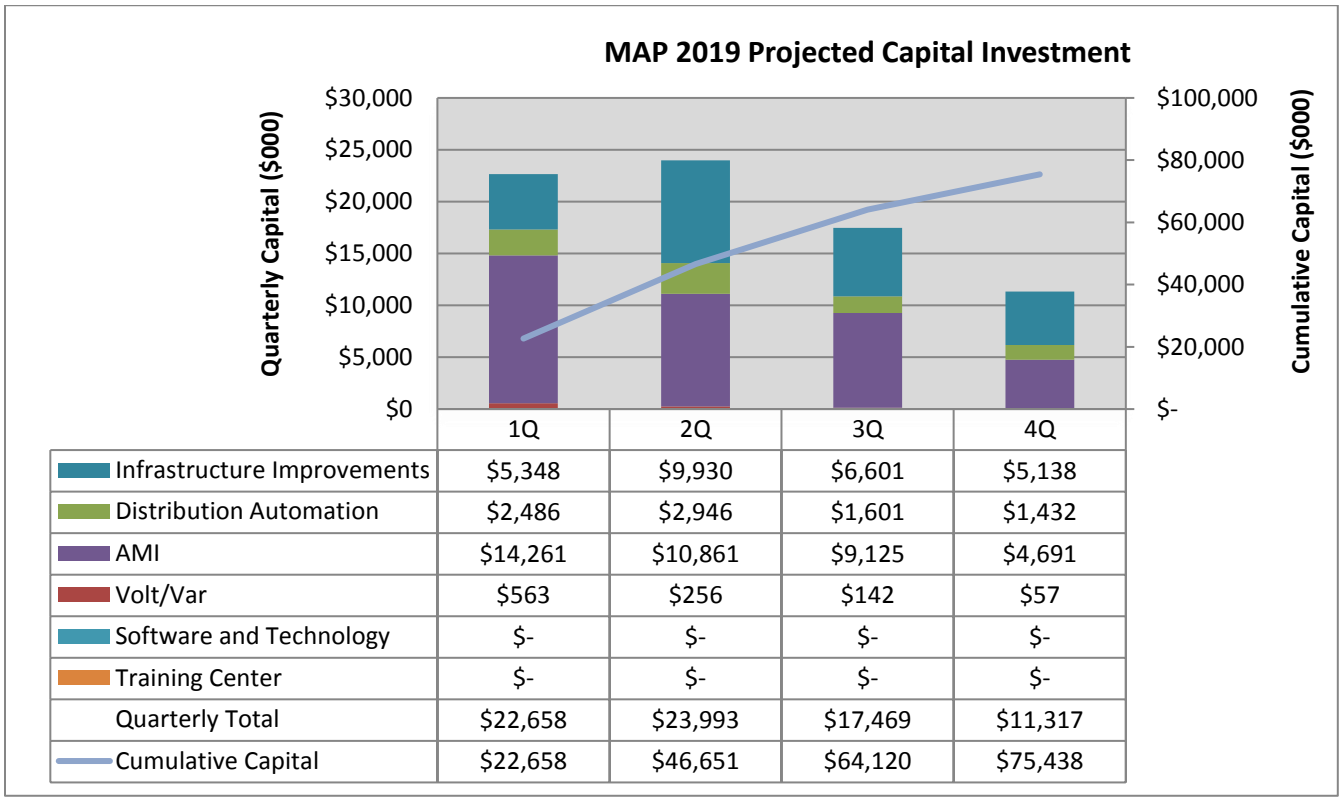
There are no planned investments in this program for 2019.

Appendix A: Summary-Level Plan Information

As required by Section 16-108 (b), the total projected $75.4 million of cumulative capital investment under the 2019 Plan will be incremental to AIC's total annual capital investment program, as defined in Section 16-108.5(b). That is, over the course of 2019, AIC will invest at least a projected cumulative total of $75.4 million more capital than a capital investment program that invested at an annual rate defined by AIC's average capital spend for calendar years 2008, 2009, and 2010, as reported in AIC's applicable Federal Energy Regulatory Commission ("FERC") Form 1s.

Figure 1 represents the projected total capital investment associated with the 2019 Plan.

Figure 1: 2019 Plan Capital Investments



	1Q	2Q	3Q	4Q
Infrastructure Improvements	$5,348	$9,930	$6,601	$5,138
Distribution Automation	$2,486	$2,946	$1,601	$1,432
AMI	$14,261	$10,861	$9,125	$4,691
Volt/Var	$563	$256	$142	$57
Software and Technology	$-	$-	$-	$-
Training Center	$-	$-	$-	$-
Quarterly Total	$22,658	$23,993	$17,469	$11,317
Cumulative Capital	$22,658	$46,651	$64,120	$75,438

Table 2 represents the projected total number of units to be installed within the 2019 Plan.

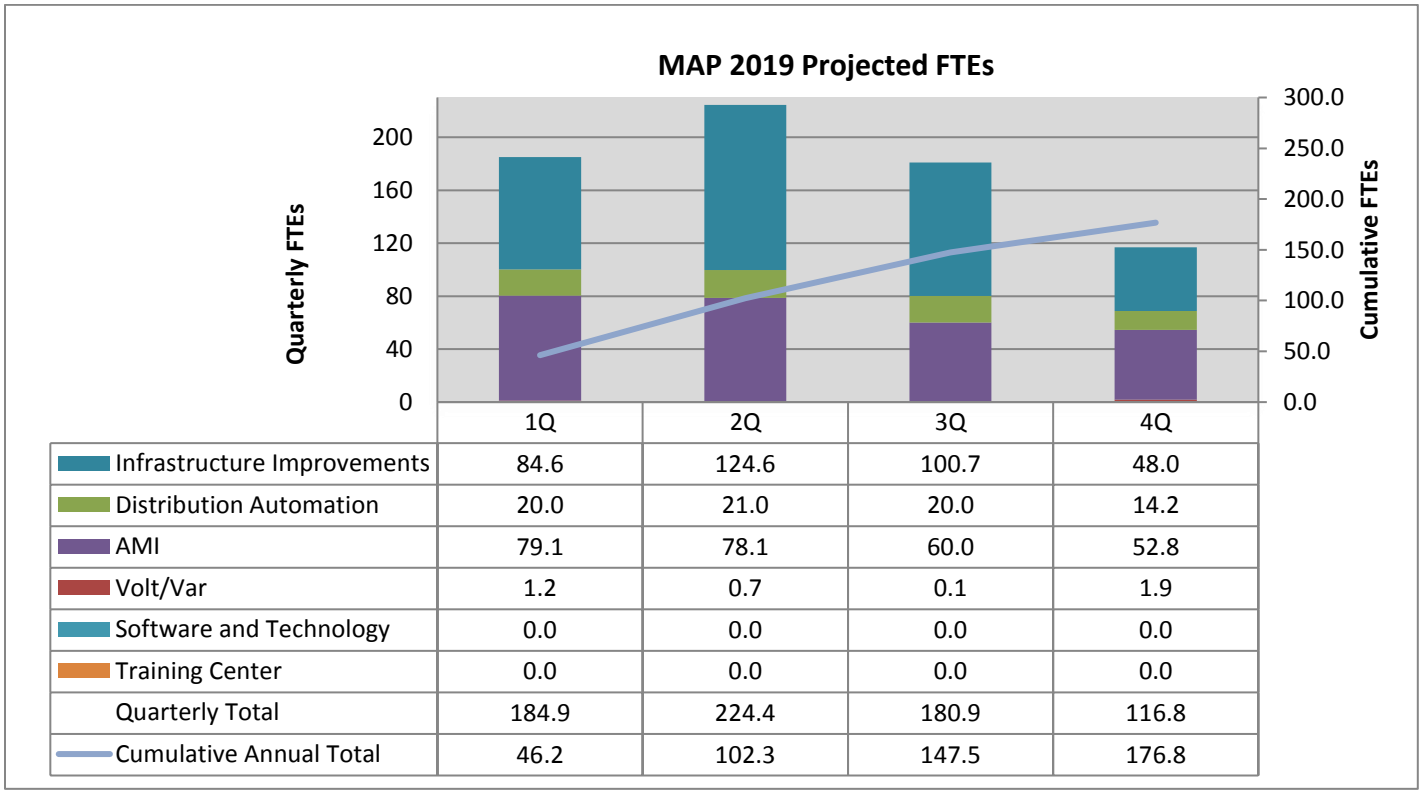
Table 2: 2019 Plan Units

Infrastructure Improvements	Units	2019
Replace Primary Distribution Substation Reclosers	Reclosers	22
Substation Animal Protection	Substations	6
Bulk Substation Improvements	Projects	0
Distribution Transformer Reserve	Projects	1
Tie Line Capacity - Line 6973	Project	0
Substation Low side Auto Transfer	Projects	0
High Voltage Distribution Pole Reinforcement	Poles	120
Replace High Voltage Distribution Breakers	Breakers	3
Spacer Cable Program	Miles	1
Rebuild Primary Distribution Lines	Miles	12
Primary Distribution Lines Capacity Additions	Projects	3
Bulk Transformer Outage Mitigation	Projects	0
Rebuild High Voltage Distribution Lines	Miles	39
Expand Bulk Supply Substations	Projects	0
Underground Primary Distribution Cable	Miles	2
System Tie Primary Distribution	Projects	4
CERT Remediation	Projects	0
Distribution Automation		
Primary Distribution Automation	Projects	24
Communication Infrastructure	None	0
High Voltage Distribution Relaying	Terminals	0
Distribution Substation Metering	Projects	0
High Voltage Distribution Automation	Projects	7
Underground Network Modernization	Protector	0
Test Bed	Projects	0
Distributed Energy Resource Integration	Projects	0
Advanced Metering Infrastructure		
AMI Summary	Meters (000)	175
Volt/Var Optimization		
High Voltage Distribution Volt / Var Control	Projects	2
Primary Distribution Volt/Var Control	Projects	0
Software and Technology Enhancements		
ADMS	Phases	0
Replacement of DEW	Project	0
Training Facilities		
Training Facilities	Locations	0

Figure 3 represents the total projected FTEs to execute the scheduled scope of work associated with the 2019 Plan.

The projected FTEs shown in Figure 3 do not include any induced or indirect FTEs.

Figure 3: 2019 Plan FTEs



	1Q	2Q	3Q	4Q
Infrastructure Improvements	84.6	124.6	100.7	48.0
Distribution Automation	20.0	21.0	20.0	14.2
AMI	79.1	78.1	60.0	52.8
Volt/Var	1.2	0.7	0.1	1.9
Software and Technology	0.0	0.0	0.0	0.0
Training Center	0.0	0.0	0.0	0.0
Quarterly Total	184.9	224.4	180.9	116.8
Cumulative Annual Total	46.2	102.3	147.5	176.8

Table 4: Projected Plan projects projected to be placed in service in 2019.

Program	Location	Description
Replace Primary Distribution Substation Reclosers	Carrollton	Carrollton - Replace 3phase recloser on feeder 511 & 554
Replace Primary Distribution Substation Reclosers	Beardstown	Auburn W - Replace 3phase recloser Ckt 557
Replace Primary Distribution Substation Reclosers	Beardstown	Griggsville - Replace 3phase recloser Ckt 521
Replace Primary Distribution Substation Reclosers	Mt. Sterling	Mt Sterling - Replace 3phase recloser Ckt 551
Replace Primary Distribution Substation Reclosers	Quincy	Quincy, 16&Wells - Replace 3phase recloser Ckt 537
Replace Primary Distribution Substation Reclosers	Quincy	Quincy,42&Columbus - Replace 3phase recloser Ckt 563
Substation Animal Protection	Mt Sterling	Mt. Sterling Animal Mitigation Fence
Primary Distribution Automation	Dupo	Add DA to Dupo ckt 217 (L50-217) and Columbia Palmer Creek ckt 213 (K58-213)
Primary Distribution Automation	Shiloh	Replace Shiloh Valley substation breaker 249 (Q95-249) with recloser, Scada, and Install Intellinode to interface to planned DA scheme
Spacer Cable Program	Mariknoll	Replace approx 500' of Hendrix in rear easement from Mariknoll Sub to Royal Heights Road
Primary Distribution Automation	Belleville	Replace Belleville 65th St recloser 124 (J84-124) with recloser, Scada, and Install Intellinode to interface to existing DA scheme
Primary Distribution Automation	Belleville	Replace Belleville Pontiac recloser 239 and 240 (K01-239 -249) with recloser, Scada, and Install Intellinode to interface to existing DA scheme
Primary Distribution Automation	Columbia	Replace Columbia reclosers 211&212 (K57-211&212) with recloser, Scada, and Install Intellinodes to interface to planned DA schemes
Primary Distribution Automation	Belleville	Replace East Belleville breaker 132 (L93-132) with recloser, Scada, and Install Intellinode to interface to existing DA scheme
Replace High Voltage Distribution Breakers	Belleville	Replace 34kV Breakers B100, 3470, and 3337 at East Belleville Substation
Rebuild Primary Distribution Lines	Chenoa	Chenoa - Rebuild 0.5 miles #6 CW primary
Replace Primary Distribution Substation Reclosers	Bloomington	Lexington - Replace 3phase recloser on Ckt 255
Underground Primary Distribution Cable	Canton	Replace underground at Robinhood Dr on circuit 509.
Underground Primary Distribution Cable	Canton	Canton/Mounge at Village Square/ CN5492, CN5501
Replace Primary Distribution Substation Reclosers	Centralia	Texas - Replace 3phase recloser on feeder 131
System Tie Primary Distribution	Irvington	Install 1 mile 556 MCM I-64 crossing at Irvington and rebuild existing pole line to Richview
Primary Distribution Automation	Champaign	Replace Champaign Mattis substation breaker 164 and 166 (K74-164, -166) with recloser, Scada, and Install Intellinode to interface to planned DA scheme
Spacer Cable Program	Urbana	Replace 6600’ of 477AA and 1/0AA spacer cable on circuit 451 in Urbana
Primary Distribution Automation	Mansfield	Replace Mansfield recloser 104 (P18-104) with recloser, Scada, and Install Intellinode to interface to existing DA scheme
Primary Distribution Automation	Danville	Replace Danville Franklin St recloser 160 (L73-160) with recloser, Scada, and Install Intellinode to interface to existing DA scheme
Primary Distribution Automation	Westville	Replace Westville Main St recloser 135 (H06-135) with recloser, Scada, and Install Intellinode to interface to existing DA scheme
Replace Primary Distribution Substation Reclosers	Danville	E Fairchild - Replace 3 phase recloser
High Voltage Volt/Var Control	Decatur	Add SCADA indication and control and replace cap switcher at Decatur Leafland substation
Primary Distribution Automation	Decatur	Replace Decatur Mound Rd substation breaker 125 and 126 (L12-125, -126) with recloser, Scada, and Install Intellinode to interface to planned DA scheme
Replace Primary Distribution Substation Reclosers	Decatur	Clinton Monore St - Replace 3phase recloser
Replace Primary Distribution Substation Reclosers	Decatur	DC Walnut Grv - Replace 3phase recloser Ckt 282
Primary Distribution Lines Capacity Additions	East St. Louis	4-12 KV Conversion 4th Ckt
Primary Distribution Automation	Effingham	Add DA to Effingham Cherry St X57-566 and Effingham McGrath Z37-533
Underground Primary Distribution Cable	Effingham	Replace approx. 3000 feet of URD in Kingwood Estates subdivision
Primary Distribution Automation	Galesburg	Replace Galesburg Irwin Dr substation breaker 191 and 192 (M37-191, -192) with recloser, Scada, and Install Intellinode to interface to planned DA scheme
High Voltage Distribution Automation	Galesburg	GB S Farnham - Install AS on switches 1137 and 1123 on Line 6627
Primary Distribution Automation	Galesburg	Replace Galesburg Freemont Rd recloser 185 (M36-185) with recloser, Scada, and Install Intellinode to interface to existing DA scheme

Primary Distribution Automation	Galesburg	Replace Galesburg Power House recloser 107 (M42-107) with recloser, Scada, and Install Intellinode to interface to existing DA scheme
High Voltage Distribution Automation	Galesburg	Install AS L6627 Switch 1137
Distribution Substation Transformer Reserve	Aledo	Aledo - Rplc Xfmr #2
System Tie Primary Distribution	Gilman	Gilman-Onarga 12 KV tie
Replace Primary Distribution Substation Reclosers	Granite City	Granite City Maryland - Replace 3phase recloser on feeder 323
Primary Distribution Lines Capacity Additions	Mount Olive	Reconductor #2 conductor to 556 on circuit 845 to increase capacity for DA scheme
Rebuild Primary Distribution Lines	Donnellson	Relocate approx 2 mi from RR to roadside
Rebuild High Voltage Distribution Lines	Hillsboro	Respan sections of line 3317 due to galloping
Rebuild High Voltage Distribution Lines	Jacksonville	Rebuild 8.6 miles from IP Concord Jct to Winchester tap From Breaker 610 to ABS655 2
Rebuild High Voltage Distribution Lines	Jacksonville	69KV V04-718 Line Rebuild from Concord Junction toward Bluffs
Substation Animal Protection	Lasalle	Cherry Animal Fence Peoria
Replace Primary Distribution Substation Reclosers	Vienna	Vienna - Replace 3phase recloser on feeder 539
Replace Primary Distribution Substation Reclosers	Carterville	Carterville Substation - Replace 3phase recloser 594
Substation Animal Protection	Marion	Christopher - Animal Fence
Primary Distribution Automation	Wood River	Add DA to Woodriver 6th St ckt 340 and Woodriver Picker St ckt 346
Primary Distribution Lines Capacity Additions	Wood River	Reconductor 1/0 conductor to 556 on circuit 346 to increase capacity for DA scheme.
Rebuild High Voltage Distribution Lines	Maryville	Rebuild 2300 ft of line 3391A outside Engineer 1 substation
Primary Distribution Automation	Edwardsville	Replace Edwardsville Schwarz St recloser 365 (M04-365) with recloser, Scada, and Install Intellinode to interface to existing DA scheme
High Voltage Distribution Automation	Caseyville	Install AS on Switches 3359 and 3360 at Bethel Mine Road Substation
High Voltage Distribution Automation	Wood River	Wood River Bow Bend - Replace ATO
Substation Animal Protection	Collinsville	Collinsv Goethe -Animal Fence
Substation Animal Protection	Glen Carbon	Glen Carbon Mn -Animal Fence
High Voltage Distribution Pole Reinforcement	Paris	Storm Hardening West Kansas to Paris Line X89-771 15.8 mi
Replace Primary Distribution Substation Reclosers	Arcola	Arcola N - Replace Recloser Ckt 534
Replace Primary Distribution Substation Reclosers	Paris	Paris High Street - Replace 3phase recloser
Replace Primary Distribution Substation Reclosers	Shelbyville	Shelbyville W - Replace 3phase recloser
Rebuild Primary Distribution Lines	Ashley	Rebuild towards Posen Phase 1 - construct 4 miles of 556 MCM dist from Ashley to Intersection of Rt 51 and Main Rd along St Hwy
High Voltage Volt/Var Control	Ridgeway	Ridgeway - Replace Cap Sw 658
System Tie Primary Distribution	Bluford	Replace 34.5 conductor at Bluford Substation. Construct a circuit tie so that customers from the Bluford Substation can be services from the Mt. Verrnon Fairfield Road Substation.
Primary Distribution Automation	Olney	Add DA on Olney ckt 515 (Y35-515) and Olney, S ckt 592 (Y37-592)
Rebuild Primary Distribution Lines	Paxton	Convert Fisher X68-506 from 7.2kV Delta to 12.47kV Wye and tie all load to Fisher North 540. Remove Fisher Substation.
High Voltage Distribution Pole Reinforcement	Cissna Park	Storm hardening for Cissna Park tap and replace switch. Line Y55-715.
System Tie Primary Distribution	Gibson City	Build new 3-ph tie between X75-573 and X75-512
High Voltage Distribution Automation	Forrest	Add SCADA to Gilman South Line 777 Switches 660 and 661 -inside Forrest Junction Substation
High Voltage Distribution Automation	Fairbury	Add SCADA to Gilman South Line 777 Switch 602 -inside Fairbury East Substation
Primary Distribution Automation	Bartonville	Replace Bartonville recloser 25 (A17-25) with recloser, Scada, and Install Intellinode to interface to existing DA scheme
Primary Distribution Automation	Peoria	Replace Grandview reclosers 4 and 5 (B45-4 -5) with recloser, Scada, and Install Intellinode to interface to existing DA scheme
Primary Distribution Automation	Peoria	Add Intellinode to Switchgear on Harmon 3 (D72-3) to interface to planned DA Scheme
Primary Distribution Automation	Logan	Replace Logan recloser 1 (B19-1) with recloser, Scada, and Install Intellinode to interface to existing DA scheme

Replace Primary Distribution Substation Reclosers	Peoria	Fondulac - Replace 3phase recloser
Replace Primary Distribution Substation Reclosers	Peoria	Grandview - Replace 3phase recloser on Ckt 003
Replace Primary Distribution Substation Reclosers	Peoria	Stevens - Replace 3phase recloser on feeder 2
Rebuild High Voltage Distribution Lines	Hutsonville	Hutsonville (X85) to Marshall (Y04) 69kV rebuild
High Voltage Distribution Automation	Bridgeport	Add SCADA to Lawrenceville South Line Switch 602 in W Bridgeport Sub
Substation Animal Protection	Sparta	Sparta - Animal Fence
Primary Distribution Automation	Springfield	Replace Limit recloser 15 (D31-15) with recloser, Scada, and Install Intellinode to interface to existing DA scheme
Primary Distribution Automation	Springfield	Replace Kickapoo recloser 4 (B68-4) with recloser, Scada, and Install Intellinode to interface to existing DA scheme
Replace Primary Distribution Substation Reclosers	Springfield	Dorlan - Replace 3phase recloser